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# China Report

AGRICULTURE

No. 195



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25 March 1982

## CHINA REPORT

## AGRICULTURE

No. 195

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I. GENERAL INFORMATION

AGRICULTURE VICE MINISTER OUTLINES PREMISES FOR FUTURE DEVELOPMENT

Hong Kong CHING-CHI TAO-PAO [ECONOMIC REPORTER] in Chinese No 6, 15 Feb 82  
pp 16-17

[Article: "Situation and Trends in China's Agriculture. China's Deputy Minister of Agriculture, Liu Ruilong [0491 3843 7893] Replies to Questions From This Journal's Reporter"]

[Text] Editor's Note: In this article, China's deputy minister of agriculture, Liu Ruilong, mostly explains and elaborates on three main questions (in reply to questions from this journal's correspondent) as follows:  
(1) Development of China's agriculture has entered a new historical stage of development and the situation is very good, but development is unbalanced. (2) Hastening of the development of agriculture requires, first, reliance on policies and, second, reliance on science. (3) What is meant by Chinese style agricultural modernization.

The Transformation of Rural Villages and the Situation in Agriculture

Question: Please tell us the situation in China's agriculture.

Answer: Following the Third Plenary Session of the 11th Party Central Committee, China readjusted its rural policies and corrected the "leftist" errors of the past. It conducted necessary readjustment of production relationships, and restructured the organization of labor, the method of remuneration, and farming methods. It destroyed the former situation of over centralization of management, blind guidance in production, egalitarianism in distribution, eating out of a "common pot," and various inequitable burdens. It established and perfected various forms of a system of responsibility for production, took firmly in hand development of economic diversification, effectively aroused the enthusiasm of the broad masses of peasants, and impelled China's agriculture toward a new period of historical development.

Question: What are the main indications that China's agricultural situation is very good?

Answer: The main indication is all around increase in outputs. The area sown to grain last year was 50 million mu less than two years ago, and quite a few provinces sustained severe natural calamities; nevertheless, total grain output achieved the levels of the previous year, making it the second highest year for output since the founding of the People's Republic. Output of cotton, oil-bearing crops, and sugar increased over 2 years ago, and other economic crops, and sugar increased over 2 years ago, and other economic crops were able to exceed or fulfill plan. Steady growth took place in the livestock industry, outputs of hogs, cattle, sheep, and goats increasing. Commune and brigade enterprises continued progress in the midst of reorganization. Both forestry and the fishing industry also had new growth. Peasant income increased; life improved further, and in an appreciable number of areas that have long been poverty stricken, the problem of having enough to wear and getting enough to eat has been solved. The overall situation in rural villages today is political stability, economic prosperity, contented production, worry free production, and diligent production. This is a fundamental change.

However, we have noted that development of the rural situation has not been balanced, that the foundation for agriculture has not been consolidated, and that we are a considerable distance away from being "over the hump." Consequently sustained and steady agricultural development will require great efforts.

Question: What are the favorable factors in sustained and steady development of China's agriculture?

Answer: After 3 years of readjustment new trends and new factors have emerged in China's rural villages that are beneficial for agricultural development.

First, the enthusiasm of both the collectives and individuals has been aroused, and a situation has come about in which the collective, individuals, and the state are all moving upward together. This is a basic element in the sustained and steady development of agriculture. Factors advantageous to development of agriculture in the peasant family economy, in particular, things such as cooperative efforts among families, private plots, small amounts of peasant family funds, and small farm implements were formerly restricted in the role they would play. Now, however, they have been emancipated and are playing an increasingly larger role. Individual welfare and collective welfare are closely combined, and arousal of individual commune member enthusiasm is closely linked to the full play of superiority of collective unit farming, which are our most fundamental experiences in the development of agriculture since founding of the People's Republic. During recent years, the various rural policies of party and government have stressed adherence to the principle of voluntary participation and mutual benefit with the object of arousing these two enthusiasms.

Second, China's agriculture is moving away from the singular role as a grain growing industry to which it has been limited to economic diversification, with all around development of farming, forestry, livestock raising, sideline occupations, and the fishing industry. People have gradually come to realize that all around development helps make full use of China's abundant workforce

resources and natural resources, helps make the most of multiple economic benefits in every field, helps provide more agricultural byproducts for society, helps enliven the economy, and helps the stable and healthy development of agriculture as a whole.

Third, peasant enthusiasm for the study of science and the application of science is being raised. Regions in which farming had formerly been done in a careless way are now developing in the direction of intensive farming, and the level of intensive farming in high yield areas is continuing to rise. During the past 3 years, the area sown to grain throughout the country has declined by more than 100 million mu, yet grain output increases year by year. Cotton output also increases year by year. This is the result of intensive farming, which has raised yields per unit of area.

Fourth, accompanying development of economic diversification has been an increase in agricultural byproducts, increasing peasant prosperity, expansion of exchanges of goods between cities and the countryside, and rather rapid development of city and rural collective commerce and individual businesses that function to augment state owned and collectively owned businesses. Production of rural goods and exchanges of goods are now in process of surmounting obstacles to win further development.

#### Development of Agriculture Through Reliance on Policies and Science

Question: In his work report to the National People's Congress, Premier Zhao Ziyang noted that acceleration of agricultural development requires reliance on policies and science. What are your views on this?

Answer: This is the summation of many years experience. The state intends gradually to increase investment in agriculture, but it cannot be very much. Consequently development of agricultural production and moving forward with rural construction requires continued reliance on policies and on science. This is because both hold an extremely huge potential. Reliance on policies and on science holds the hope and the potential for future development of agriculture in China, and is also the object of our efforts.

Question: Please explain the significance of reliance on policies.

Answer: Many years experience, particularly the experiences of the past 3 years, attest that correct policies have played an outstanding role in arousing enthusiasm among the broad masses of peasants. We firmly believe that among the broad masses of peasants exists an extremely great enthusiasm for socialism. The peasants demand adherence to the path of socialist collectivization of agriculture, and support public ownership of the means of production such as land. The peasants call for readjustment of production relationships and institution of various forms of a system of responsibility for production, and in so doing do not divorce themselves from socialism or the socialist system of public ownership. Rather, they demand elimination of the influence of past "leftist" errors of overcentralization, blind guidance, egalitarian "eating out of a large common pot," and inequitable burdens of various kinds that fettered them. Therefore, when the party responds to the demands of the



broad peasant masses, guarantees and respects the autonomy of production teams, institutes various forms of a system of responsibility, and develops economic diversification, the enthusiasm of the broad masses of peasants rises rapidly. The State Council has already made clear that adherence to the path of socialist collectivization and the system of public ownership of the means of production such as land will remain unchanged for a long period of time, and adherence to the practice of systems of responsibility for production in the collective agricultural economy will not change for a long time. Efforts will be made to improve upon and perfect the various forms of a system of responsibility for agricultural production and various rural economic problems. On the issue of systems of responsibility in agricultural production, the principles of "adaptation of general methods to local situations and tailored guidance" must be upheld to permit diverse forms. In addition, it is necessary that all quarters also give attention to improving the economic benefits of agricultural production.

Question: In what areas has state support to agriculture been manifested?

Answer: First, in protection of the peasants' vested interests, in stable policies, in not lightly changing effective prevailing economic policies.

Second, in guaranteeing the use in agriculture of state investment in agriculture, with no diversion to non-agricultural purposes.

Third, in guaranteeing to supply the means of production and the means of livelihood, in opening numerous channels for trade, in planned development of collective rural businesses, in operating rural free markets, and in enlivening exchange of goods between cities and the countryside, the products produced by the peasants thereby being converted to commodities, and the industrial products required by or used in the daily life of rural villages being able to satisfy demand.

Fourth, in vigorous development of the small farm implements and hand tools so urgently needed in rural villages, and improvement in production of tools and semi-mechanized tools to satisfy peasant needs. Readjustment of inequitable use of nitrogenous, phosphate, and potash fertilizers through increase in phosphate and potash fertilizer production.

Question: Please also explain the significance of reliance on science.

Answer: Use of modern agricultural science and technology to equip agriculture, and putting agricultural production techniques and economic management on a scientific foundation are prerequisites for accelerating development of agriculture and promoting the modernization of agriculture. Premier Zhou's report provided a consummate explanation of this. The goal in reliance on science by agriculture is to have China's agriculture take the path of small investment for fairly high economic benefits. In order to do this, we have to place research on and spread of agricultural science and technology in a major position, linking the fruits of modern scientific and technical research to China's superior tradition of intensive agriculture, to wrest from nature the large amounts of agricultural products we require.



## Chinese Style Modernization of Agriculture

Question: In his government work report, Premier Zhoo Ziyang noted that simultaneous with development of the entire agricultural economy must be consideration of and provisions for rural construction. What are your views on this?

Answer: I believe that across the board consideration has to be given agricultural production, rural construction, and the peasants' livelihood. This involves the entire agricultural process, i.e. it includes the three-part needs of agricultural production's preliminaries, production itself, and follow-up. Preliminaries include improvement in conditions for agricultural production, equitable arrangements for workforces, and supply of the means of production. Production itself includes the science and technology and management methods needed for production in farming and livestock raising. Follow-up includes processing, storage, transportation, commodity exchange, banking, and credit involved for agricultural pyproducts. Secondly, consideration must be given the total livelihood needs of the peasants, most notably their needs for food, clothing, shelter, items needed in daily life, travel, education, and personal cultivation. In this way, consideration can be given both to production and to livelihood. In addition, rural construction and building of the national economy as a whole must be considered together. I believe that rural construction should provide good conditions both for agricultural production, and provide good production conditions and living conditions for agricultural producers and residents of rural areas, and should, at the same time, provide good conditions for development of the national economy as a whole, and for equitable distribution and deployment of productive forces. To this end, for development of the needs of agricultural production and for the needs of rural village people's livelihoods, a combination of building of rural material civilization and spiritual civilization, plus coordination with needs for development of the national economy as a whole, and all around planning of rural construction is very necessary.

Question: What is the program for development of China's agriculture?

Answer: Our program is active development of economic diversification without any let up whatsoever in production of grain. The first requirement is equitable use of existing cultivated land, plus a determination to make gradual, equitable, and full use of mountains, hills, grasslands, rivers, lakes, ponds, coastal beaches, and sea areas, plus greater all around development of the rural economy to assure comprehensive growth of the national economy. This is also the fundamental strategy under present circumstances for development of China's agriculture.

Question: What problems should China watch when studying longterm development needs of agriculture?

Answer: We must take a Chinese style path of modernization, and walk the path of socialist modernization of agriculture. We are determined to walk a new path of comparatively rapid economic development, comparatively good

economic results, and greater material benefits for the people. This is the total basis for our future planning.

Second, we must also assimilate our own experiences. We must purposefully study foreign science and technology and advanced economic management methods of use to us. However, we positively cannot repeat or adopt for use the tortuous roads and inherent maladies of others. The so-called "energy intensive agriculture" requiring high investment and high energy consumption to derive agricultural products that is practiced abroad creates serious environmental pollution and lopsided development, which we should be careful to avoid.

Third, agricultural development in all countries faces common requirements, but there is no common model. The so-called common requirements are modernization of technological equipment, scientific production techniques and management methods, and socialization and specialization of labor engaged in production. However, progress in development of agriculture differs from country to country, and we cannot rigidly copy the various different models. Therefore, we must formulate, on the basis of China's own situation, the long range plans and the various programs and policies for agricultural development.

Question: What is the substance of China's situation?

Answer: Deputy Chairman Chen Yun made a penetrating capsulization of China's situation, namely that a series of characteristics ensue from having "a population of 1 billion, 800 million of whom are peasants." In terms of China's agriculture as a whole, this results in two basic characteristics: One is a small average per capita amount of cultivated land, but numerous mountains, water surfaces, vast grasslands, and fairly abundant natural resources. Second is antiquated technical facilities, but abundant workforce resources. Development of China's rural economy must, therefore, proceed from these realities.

Question: What is Chinese style modernization of agriculture?

Answer: By the so-called Chinese style is meant setting the goals, policies, steps to be taken, and emphasis of development of China's agriculture on the basis of China's natural resources, economic foundation, technological level, and on the basis of needs of national economic and agricultural development. Thus the Chinese style modernization of agriculture has to proceed from China's circumstances and requirements, use modern science and technology and socialist industry to equip agriculture with two kinds of public ownership, put agricultural production technology and economic management on a modern, scientific footing, build an equitable agricultural economic structure, and production pattern, and a fine cyclical agricultural ecological system, build a flourishing agriculture with all around development of farming, forestry, livestock raising, sideline occupations and fisheries, and prosperous rural villages in which agriculture, industry, and commerce are integrated so as to derive highly developed land productivity rates, labor productivity rates, commodity rates, and employment rates. Modernization of China's agriculture is also a

process of economic development and technical reform. As Premier Zhao said in his report, China's workforce resources are abundant, but capital is inadequate; for a fairly long time to come, there can be no total demand for reliance on new technology or a lopsided seeking after automation. Thus, the relationship between modern science and technology and China's fine traditions will have to be handled well to modernize China's traditional techniques and to Sinify modern foreign science and technology.

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# SEVERAL NEW RICE VARIETIES DESCRIBED

Beijing NONGCUN CONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12,  
5 Dec 81 p 23

[Article by Zeng Sui [2582 4482] and Huang Zhongyin [7806 0022 8337]: "Introduction of Several Superior Rice Varieties"]

[Text] Chaogui

Chaogui is a superior variety bred by the Guangdong Provincial Academy of Agricultural Sciences. Plant height is about 100 centimeters; stems are sturdy; leaf color is dark green; root system is well developed; absorption power is strong; adaptability in fertile fields is fairly broad; proness to close rows in the early stage of growth; high light energy utilization rate and light content [0342 0698] efficiency rate. Panicles are large and numerous; grains are heavy; colony structure is good; and per thousand weight of grains is about 25 grams.

Weaknesses are: Poor disease resistance. Grown as an early crop, prone during early and late stages to blast of rice, rice neck blast, and bacterial blight. Grown as a late crop, prone during the early and late stages to red bacterial blight and bacterial blight. Poor tolerance of cold, of drought, and of heat. In growing Chaogui, comprehensive prevention and control measures have to be taken. In areas in which blast of rice, bacterial blight, and natural disasters frequently occur, it should not be grown.

Hong 410

Hong 410 is an early ripening high yield superior variety bred by the Tongan Superior Variety Farm in Fujian Province. This variety has short, thin stems; colony structure is good; tillering is strong; leaf color is dark green; root system is well developed; panicles are short; heads are numerous; effective panicles number between 300,000 and 350,000 per mu, each panicle contains about 60 grains; grains are plump; and the per thousand grain weight is 28 grams. Weaknesses are a low rate of polished rice and fairly poor rice quality. It is fairly sensitive to temperatures, and will not tolerate low temperatures between the booting and panicle formation stages. It shows poor resistance to disease, being prone to rice blast, sheath and culm blight, and purple stem [4793 4427] blight, the incidence rate of which is rather severe. It is also prone to rice stem borer, leaf roller, and leafhopper infestations.

#### Guangluai No 4

Guangluai No 4 is a superior variety successfully bred by the Guangdong Provincial Academy of Agricultural Sciences. Plant height of this variety ranges from 80 to 85 centimeters; stems are thick; leaf blades somewhat broad, short and thick; and leaf color is dark green. During the seedling stage, it tolerates cold; its tolerance of drought is strong; it tolerates fertilizer and resists lodging; has a high tillering and panicle formation rate; and grows evenly. Fruiting rate is generally around 90 percent; the paddy is round and plump; per thousand grain weight is about 26 grams; polished rice rate is high; and polished rice quality is intermediate. Weaknesses include too premature degeneration when grown in places where the water table is high or the soil heavy. Its requirements for fertilizer are large, and in addition to sufficient base fertility, it requires heavy applications of fertilizer, with early tillering fertilization to promote early and rapid growth. It is prone to yellow dwarfing and bacterial blight, and is also subject to leafhopper and rice stem borer infestations against which timely prevention and control work must be done.

#### Late Crop Aigeng 23

Aigeng 23 is a late ripening late geng variety bred by the Zhejiang Provincial Academy of Agricultural Sciences. Plant heights range from 85 to 90 centimeters; plants are rather compact; growth is delicate; structure of stems and leaves is equitable, light being able to penetrate directly to the base of plants; the root system is well developed; making for absorption of water and fertilizer; stems are tough and tensile; it is tolerant of fertilizer and resistant to lodging; it may be close planted, and it shows fairly strong resistance to bacterial blight. Panicles are between 14 and 16 centimeters long; grains cluster fairly closely together; per thousand weight of grains is about 25 grams; and polished rice rate is between 82 and 85 percent. Its weaknesses include proneness to rice blast, necessitating intensification of preventive measures in seedling beds and open fields during the seedling stage, and it is prone to leafroller and aphid infestations.

#### Early Rice Qingganhuang

Qingganhuang is a late ripening early xian variety bred by the Zhejiang Provincial Academy of Agricultural Sciences through the crossing of Guangluai No 4 with Longge 16. Plant height is about 78 centimeters; plants are compact; leaf color is light green; seedlings grow evenly; tolerance of cold is fairly strong; each panicle contains about 65 grains; fruiting rate is approximately 82 percent; per thousand grain rate is 22 or 23 grams; and it shows fairly great flexibility in fertility requirements. When grown under conditions of medium to low fertility, extent of yield increase is fairly great; when grown under conditions of adequate fertility, it is better able to make the most of its potential for increased yields. Its weaknesses are fairly weak tillering strength, necessitating provisions for closeness in transplanting and increased number of transplanted clumps so that numbers of panicles and numbers of grains will be accordingly regulated. It is fairly prone to brown leaf blight, which requires intensification of fertilizer and



water management, controlling the amount of nitrogenous fertilizer given in the late stage. When disease is spotted, pesticides must be used at once to control it.

#### Zhongdan No 2

Zhongdan No 2 is a new rice variety bred by the Crop Institute of the Chinese Academy of Agricultural Sciences in cooperation with the Dandong Agricultural Institute in Liaoning Province. The seedling age requirements of this variety are not strict; plants are compact; plant height runs from 100 to 105 centimeters; stems are tough and tensile; resistance to lodging is strong; panicles are 22 centimeters long, each panicle containing about 120 grains, the per thousand grain weight of which is 27 grams. It is strongly resistant to blast of rice and medium resistant to bacterial blight. It is early ripening; widely adaptable; has a high polished rice rate, with rice of good quality, the polished rice rate being 82 to 83 percent. Its shortcoming is fairly weak tillering strength. When transplanting seedlings, one must be sure to maintain a basic number of seedlings.

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PRESENT, FUTURE ROLE OF RURAL ENTERPRISES DISCUSSED

Hong Kong CHING-CHI TAO-PAO [ECONOMIC REPORTER] in Chinese No 6, 15 Feb 82  
pp 18-19

[Article: "Rural Enterprises Have Achievements to Their Credit--Interview  
With Deputy Minister of Agriculture Du Ziduan [2629 1311 4551]"]

[Text] Editor's Note: China has 1.43 million commune and brigade enterprises producing more than 10,000 different products. Their estimated output value in 1981 was 68 billion yuan, and they played a major role in the national economy. Inasmuch as commune and brigade enterprises have numerous characteristics, they have vast prospects for future development.

During the past several years, commune and brigade enterprises in China's farflung villages have prospered to become a major force in China's national economy and a powerful support for consolidating development of the rural collective economy. By way of understanding the current situation in rural enterprises, the correspondent recently interviewed Du Zirui, deputy minister of agriculture and director of commune enterprises.

Remarkable Achievements From Readjustment of Rural Enterprises

Deputy Minister Du said that China's rural commune and brigade enterprises have developed on a foundation of the rural collective economy, and have been founded and developed little by little from disbursements of funds from commune member collective accumulations. Because they fit in with the orientation of overall rural economic development, development has been fairly rapid and now commune and brigade enterprises in the country number 1.43 million.

These enterprises produce a great variety of wares, principally small farm machines and tools, chemical fertilizer, pesticides, cement, coal, construction materials, foodstuffs, handicrafts, and processed goods from farming, forestry, animal husbandry, and fisheries; They also are concerned with fruit orchards, tea groves, the raising of livestock and poultry, hatching of aquatic products, construction, and transportation and communications. In 1980 commune and brigade enterprise products numbered more than 10,000 different kinds.

Dr Zirui said that along with the readjustment and restructuring of the national economy done during the past 2 years, commune and brigade enterprises have also carried out reorganization, their structure gradually becoming more rational. Those plants in competition with large industries for raw materials have turned to the production of other goods. Labor-intensive industries, particularly agricultural byproduct processing industries and service trades, have developed very rapidly, and production of consumer goods has increased strikingly while the ratio of other trades and industries has gradually declined. In 1980, commune and brigade enterprise total earnings grew by 42.8 percent as compared with 1978 earnings of 43 billion yuan. The ratio derived from processed industrial raw materials and fuels fell from 44 percent to 39.8 percent, and electro-mechanical products dropped from 25.3 percent to 22.6 percent. Earnings from construction and service trades rose from 18.6 percent to 21.1 percent, and agricultural products processing industry earnings went from 11.1 percent to 16.4 percent.

Remarkable advance was made in the restructuring of commune and brigade enterprise organization and the emergence of more than 20,000 jointly operated enterprises of various kinds. More than 2,000 commune and brigade enterprise supply and marketing companies have been established at all levels, and numerous communes have established supply and marketing administration units, warehouses, and retail outlets. Enterprise administration and management is in process of improvement, and the labor productivity rate has risen 30 percent since 1978.

Currently, commune and brigade enterprises' total output value, total earnings, and fixed assets each account for one-third in the rural collective economy. In 1980, total income for the year amounted to 61.4 billion yuan, a 22 percent increase over 1979. During the first half of 1981, it again increased by 10.4 percent over the same period during the previous year.

#### Rural Enterprises Play Major Role in Collective Economy

Deputy Minister Du said that commune and brigade enterprises, no less than farming and livestock raising, are an important integral part of the rural economy. Development of rural enterprises plays a major role in the transformation of the backward state of rural villages and in the prospering of the national economy. China has a large rural population living on a relatively small amount of cultivated land. Its commodity economy is not well developed, and peasant earning levels are low. Experience has shown that development of rural enterprises holds clear advantages for solution to the following problems:

**Accumulation of Funds for Development of Agriculture.** Between 1978 and 1980, income from rural enterprises, in addition to being a source of 7.6 billion yuan in funds for the expansion of reproduction and support of agriculture (3.3 billion going for capital construction of farmlands, 3.2 billion being used to purchase farm machinery; and 1.1 billion being used to support poor brigades) was used to run collective welfare enterprises in rural villages for culture, education, and health.



**A Money Tree For Peasants Increases in Income.** A 1980 survey showed that in 90 percent of somewhat more than 5,500 of the most prosperous production brigades operated brigade enterprises. In some places, commune and brigade enterprises have become the principal source of peasant income. In 10 suburban Shanghai counties, half of peasant earnings derived from collective sources in 1980 was from commune and brigade enterprises. In 1980, 65 percent of the average per capita distribution of 182 yuan from the collective to peasants in suburban counties of Beijing derived from commune and brigade industries and sideline occupations.

**Provided For Large Quantities of Labor Surplus to Agriculture.** With the increase in the extent of agricultural mechanization and steady improvements in the system of responsibility for production, more and more surplus labor appeared in China's rural villages. Development of rural enterprises is a major road for providing jobs for this surplus labor. Today peasants employed throughout the country in commune and brigade enterprises number 30.5 million, or 10 percent of the total rural workforce. In places in which commune and brigade enterprises have developed rapidly, as for example in suburban Shanghai counties, the labor force engaged in industry rose from 15.7 percent in 1976 to the present 23.2 percent. Development toward division of labor and division of industries for the rural workforce and the economic structure is an inevitable trend in development of the modern agricultural economy.

**Impetus to Building of Small Rural Cities and Towns.** China's rural areas have more than 53,000 small market towns. Accompanying the commune and production brigade operation in small market towns of fabrication industries, agricultural products processing industries, businesses, food and beverage service industries, cultural and amusement activities, and such enterprises and public facilities, has been the preliminary formation in 20 percent of market towns of small new cities and towns combining the characteristics of city and country, industry and agriculture. Commune and brigade enterprises have a 3 million man construction corps that produces all manner of building materials that has created conditions for a transformation in the building of small cities and towns, and in rural dwellings.

**Has Become a Major Integral Part of China's Industry.** In 1980, output value of rural industries amounted to 10 percent of China's total industrial output value. Of the industrial products produced by rural enterprises, coal accounts for 17 percent of the nation's total output, phosphate fertilizer for 37 percent, chemical pesticides for seven percent, cement for eight percent, bricks and tile for 75 percent, silk knit goods for 14 percent, and about 80 percent of drawnwork, embroideries, bamboo, rattan, willow, and grass plaited articles, and small farm tools. Output value of commune and brigade food industries. Rural enterprises in the suburbs of large cities such as Beijing, Shanghai, and Tianjin also contract to provide spare parts or perform processing for a large number of large enterprises, becoming indispensable assistants to large industries. For example, 63 percent of Shanghai's production of clothing is processed by commune and brigade enterprises. Thirty percent of the parts used to make the famous Eternal and Phoenix brand bicycles are provided by commune and brigade enterprises and by plants jointly operated by industry and agriculture.

Has Increased the State's Fiscal Revenues. In 1980, commune and brigade enterprises paid 2.6 billion yuan in taxes to the state. Government revenues in 10 Shanghai suburban counties increased by 14 percent between 1979 and 1980, 61 percent of these revenues deriving from commune and brigade enterprises.

#### Vast Prospects for Development of Rural Enterprises

Deputy Minister Du Zirui said that for China to reach a "comfortable level" by the end of this century, it will be necessary to permit four-fifths of the country's peasant population to gradually become prosperous, which will require hastening the speed of development of rural enterprises. At the National Agricultural Work Conference convened by the Ministry of Agriculture not long ago, experts discussed the problem of hastening commune and brigade enterprise development, and formulated a development plan for the sixth 5 year plan. On the basis of a year by year increase in total earnings from commune and brigade enterprises calculated at 68 billion yuan in 1981, earnings of more than 100 billion were envisaged for 1985 for a 67 percent increase over 1980.

He said China has numerous advantageous conditions for the development of rural enterprises. About one-third the nation's surplus workforces are in rural villages. Resources that can be developed for use are abundant. The market is vast. Development of agricultural (including livestock) production, economic diversification, and family sideline occupations can provide large amounts of capital and raw materials. Some state own industries want to enter into joint operation with commune and brigade industries for mutual advantages.

Du Zirui noted that commune and brigade enterprises themselves possessed strengths. They are widely dispersed in rural villages where they can use resources that large industries cannot use. They are small in scale, the proportion of their hand operations being large, and they can adjust to changes in market demands and make timely readjustments in the orientation of their products. They require little investment of capital; results are fast; that they are strongly competitive. "These advantageous conditions and characteristics" demonstrate that commune and brigade enterprises have vast prospects for development in China.

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## PROBLEMS IN ASPECTS OF LAND RELATIONSHIPS OUTLINED

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[Article by Yu Guangyuan [0060 0342 6678]: "Study of National Land Economics" (continuation)]

[Text] 3. The 24 Aspects of 12 Pairs of State Land Relationships

I intend to present here problems in 24 aspects of 12 pairs of national land relationships. 1. Plains and mountains. 2. Dryland and water surfaces. 3. Drylands and oceans. 4. Large plots and odd pieces. 5. Above ground and below ground. 6. Developed and undeveloped. 7. Readily used and hard to use. 8. Northern and southern. 9. East and west. 10. Rural villages and cities. 11. National land and public land. 12. Partial and total. A total of 24 aspects of 12 pairs. Two aspects of each pair require close attention, but I plan to lay comparative stress on the latter aspect. Of course, this is not to say that the former aspect need not be looked at carefully. Moreover, when there are several pairs, it is not possible to distinguish which deserves emphasis.

The first problem, plains and mountains.

Ours is a country with many mountains. The area of mountains, plains and hills, taken together, cover more than 6.3 million square kilometers, amounting to 66 percent of the national land area. More specifically, mountains account for 59 percent, plains for two percent, and hills for 12 percent. Among the large countries of the world, China has a large ratio of mountainous land. The mountainlands of the USSR occupy only 10 percent of its land area, and only about 15 percent of America's. China's mountainlands also have shortcomings. One is that they are high. Mountains more than 1,000 meters above sea level and high plains account for 57.9 percent of the national territory, those above 2,000 meters accounting for 32.9 percent of this. Differences in elevation are also great. At the same time, generally speaking, their soil layer is fairly poor, and the ecological system fairly brittle. But the total area is vast, and in a fairly large portion of mountain areas, conditions are very good. The semi-tropical and tropical mountain and hill regions south of the Chang Jiang, for example, have abundant water resources and biological resources. In northern mountainlands too, forestry and animal husbandry can be developed. For a

long time China has attached more importance to flat land (and this is as it should be), but has attached less importance to mountainlands. As a result, the potential in China's mountainlands is very great. To take a case in point, I recently walked around for an entire day in the Mentougou area of Beijing. From east to west and from west to east, I traversed a region in which numerous mountain tops had no trees. It was not until I had gone the way into the western landscape that there were some changes. Beijing Municipality's statistics show that output value of Beijing forestry is only one percent of total output value of agriculture, and that total output value of Beijing's agriculture accounts for only five percent of total output value of Beijing's industry and agriculture. The result of the two multiplied together is that Beijing's forestry output value (including timber and dry tea), amounts to only .05 percent. Moreover, the mountain area of Beijing Municipality amounts to 62 percent of its more than 26,800 square kilometers. I feel these figures are able to demonstrate that the situation in development of mountainlands for use is very poor. A systematic study of mountainlands use should be initiated.

The second problem, dryland and water surfaces.

China had about 400 million mu of inland waterlands--180 million mu of rivers, 120 million mu of lakes, and 100 million mu of reservoirs and ponds. Use of the country's water surfaces is somewhat different than its use of mountain regions, and this is because 92 percent of the water surfaces are distributed southeast of a line running from Qionghun to Lanzhou to Tengchong. They are in regions of China that are fairly well developed economically and where population is fairly dense. However, the situation in use of China's fresh water surfaces is by no means good. Catches from freshwater have declined from 470,000 tons in 1959 to 300,000 tons in 1979. Though the reasons are diverse, failure to attach full importance to use of water surfaces is the main one. As a result of the emphasis on taking grain as the key link for a period of time to the neglect of economic diversification, water surfaces have shrunk by more than 20 million mu, and up until not long ago, two-thirds of fresh water surfaces where fish could be easily raised were not well used. Water surfaces not very well used include reservoirs. Since the founding of the People's Republic, more than 81,000 reservoirs, large and small, have been built, those providing water surfaces suitable for the raising of fish covering 30 million mu. Last year at the national technological and economic academic discussion conference on all around use of reservoirs, enthusiastic discussions took place among delegates on problems of raising fish in reservoirs. To get an idea of the potential of China's water surfaces, all that is necessary is a comparison of two different water surfaces whose natural states are very similar. Some lakes can produce more than 200 jin per mu while others produce only 1 or 2 jin per mu. In choice pools, yields reach more than 3,000 jin per mu. With good management, yields per mu from water surfaces need be no less than yields per mu of agricultural land.

The third problem, dryland and oceans.

China is not only a large continental country; it is also a large maritime country. In studying the economic of China's national territory, not only should serious attention be given development and use of national territory on



land, but development and use of the oceans should also be studied. China faces the sea to the east and south, and has a continental coastline that is 18,405 kilometers long, not including the length of the coastline of offshore islands. China's seas (including Bohai, the Yellow Sea, The East China Sea, and the South China Sea) total 4.73 million square kilometers in area. People who study marine economics are rather fond of using the concept of a coastal belt. By this is meant an area extending landward for 10 kilometers from an average line along the shore touched by the waters of the sea, and extending seaward from the same line to a water depth of 20 meters. This area is called the coastal belt. Coastal belt and coastal waters are different concepts. The concept of a coastal belt is suited to economic study. The concept of an economic zone is applied internationally to an ocean area extending outward for 200 kilometers. China covers more than 40 degrees latitude from south to north and has very great differences in climatological, hydrological, and geological conditions. Its seas abound in biological resources, and they are also a huge storehouse of marine mineral resources. However, our development of the seas is backward as a result of historical reasons. Old China was basically unable to exercise its sovereignty over the seas. Though this has now changed, economic techniques are still backward, and ocean resources cannot be well developed or used. In studying China's territorial economy, the sea area, which is more than two-fifths the area of all its land, requires the attention of an extremely large force. The quantity of ocean catches should be greatly increased, and ocean hatching should be done. Production of ocean mineral resources should be developed, and possibilities for use of ocean energy resources should be studied. We have much to do in these regards.

The fourth problem, large plots and odd pieces.

I intend that odd bits of land not be looked down on. Beside fields, beside roads, beside homes, beside rivers, beside this, and beside that are odd bits and pieces of land. Each individual piece seems very small, but when all the bits and pieces in the country are put together, it amounts to a great amount. If well used, it can solve large problems. Most of these bits of land are in densely populated areas, which means places where land is very valuable, making its use very important. If, for example, the soil grew pasture grass rather than weeds, or were it planted to something like false indigo that could be used for many purposes, greater economic benefit would be gained from it. False indigo, for instance, has a fair amount of protein in it, and is good for preparing industrial animal fodder. Use of industrial methods to produce synthetic animal fodders can effect a saving in half of the amount of grain used, and poultry and livestock that are fed synthetic livestock fodder grow very well, the amount of lean meat in pork amounting to slightly more than otherwise. Even with weeds, if they are cut and fed to milk goats, that constitutes a good way of producing too. Goats milk is rich, and has more nutrients than cows milk. Odd bits of land may also be used to raise earthworms or ground beetles.

With regard to forestry, I have always advocated use of odd bits of land, including those in cities, for large scale planting of trees. In 1978, I envisaged planting trees in Beijing in every place where trees could be planted. I believe that substantial benefits would derive from so doing. The planting

of trees where people live and in cities could both help solve the problem of residents' needs for lumber, and could reduce destruction of mountain forests. It is a way of killing two birds with one stone.

The fifth problem, above ground and below ground.

I intend to talk about the problem of mineral resources under this heading. These are of four major kinds. One is inorganic solid minerals; one is organic minerals metamorphosed from ancient organism; one is water; and one is geothermal energy and others. Some of these mineral resources are on the surface of the ground and some are underground; some are buried deep, and some are buried shallow. China's mineral resources are very abundant. This is because mineral production forms a direct ratio with land area. It is also because China's resources have not been well developed; numerous ores lie sleeping beneath the ground. This state of affairs differs greatly from the situation in developed countries. When talking about minerals, one particularly must talk about energy. Since China is a mountainous country, and the mountains are high, water energy resources are particularly abundant, but the utilization situation is particularly poor. Some countries have an 80 to 90 percent utilization rate of their water power resources, but in China the rate is a surprising less than three percent. Unless water energy resources are used, a large amount of energy annually will flow east and south into the oceans. Energy like this that is not used is lost forever, unlike the organic minerals that have been metamorphosed from ancient plants and animals. These resources are extremely limited and 1 ton used means 1 ton less. To regard petroleum and coal only as energy sources is also not to look at them in a comprehensive way. They are also raw materials for the chemical industry and should be more used as raw materials for the chemical industry. Thus, they should be particularly cherished. This is my point of view. As regards problems of the moment, in order to race against time and hurry up, and in consideration of capital and results, this view will require concrete verification. I feel with regard to China's mineral resources that to say only that the land is vast and minerals abundant, or to say only that resources cannot be considered abundant in terms of population is not to be complete. Both aspects must be talked about. On the one hand, one must realize that abundant resources are one of China's strengths; on the other hand one must realize that our resources cannot be considered great. We must particularly value our own resources.

The sixth and seventh problem, the developed and the undeveloped, and the readily used and hard to use.

I have economized here by not writing the words national territory. If there is any plot of land in the country that has not been developed, that is possibly because the soil is difficult to use; however, undeveloped land is not necessarily land that is hard to use. Historical conditions, economic conditions, and geographic location all play a role in development or lack of development. The undeveloped soil of China still amounts to quite a bit, and some of it is in places where natural conditions are extraordinarily good. I feel that the term "develop" has been used too little for a long time in the past. This term should be used henceforth in places where it should be used to strengthen our concept of development. Development of the land in an area is

a major matter, and one that positively cannot be undertaken helter-skelter. Development work, must be done well from the very beginning. If it is not done well at the outset, a passive situation may ensue for a long time. Not long ago I paid a visit to Japan where I traveled in Hokkaido. I learned that 110 years ago Hokkaido was still a region of scant population inhabited by minority peoples. It was a place to which the government of Japan sent criminals. Only 110 years ago the decision was made to develop this region, and in the short space of time until today, it has been built up to what it now is. One must say that they were very successful in their work of developing Hokkaido. The Japanese government's experiences in developing Hokkaido merit our emulation. Once they decided to develop Hokkaido, they set up a government organization for the development of Hokkaido in February 1869. One of the major actions taken by this organization was to operate a school. Not long after deciding to develop Hokkaido, a school was opened in Tokyo in 1872 for the development of Hokkaido (Colonization Office Temporary School). Three years later, this school moved to Sapporo, Hokkaido where its name was changed to "Sapporo School of Agriculture." As I understand it, operation of this school was, in one sense, for study of technical measures for the development of Hokkaido, particularly agricultural measures. In another sense it was to train cadres for the development of Hokkaido. This school was operated entirely on public funds. Those who studied hard were also sent abroad for advanced work. But there was one condition, and that was that once their studies were over, they had to serve on Hokkaido for 5 years after which they could freely elect employment. These students studied what was necessary for Hokkaido, and an overwhelming majority of them settled down on Hokkaido to become mainstays in the development of Hokkaido. In 1907, this school's name was changed to "Agricultural College of Northeast Imperial University," and in 1917 it was again changed, this time to "Hokkaido Imperial University." In 1949, this was changed to "Hokkaido University," and it continues in operation until this day. I believe this use of science and education to blaze a trail is a good method. It is a method that encourages developers to forge ahead.

Inasmuch as we want to develop quite a few areas, it is extraordinarily necessary to seriously study development plans. While summarizing China's experiences and lessons of other countries.

Lands that can be readily used should be used to the full. National territory that is hard to use will require study of methods and steps to be taken on the basis of conditions in order to use it. Strictly speaking there is no land that cannot be used. Barren land and places with no trace of human beings can be used for purposes requiring barren land and places with no trace of human beings. Atomic bomb experiments cannot be carried out in places teeming with people. In all the world there is no such thing as land that cannot be used, but only land that is difficult to use. Discovering uses for land that is difficult to use, and finding ways and means of using national territory that is difficult to use is a major task of the study of national land economics.

The eight and ninth problems, south and north, east and west.

The north and south, east and west problems here means China's internal problems as distinct from north and south, east and west international relations.

China's internal problems of relationships between eastern regions and western regions are problems in relationships between fairly well developed regions and fairly undeveloped regions. Population is dense in the eastern part of the country; transportation is convenient; and the terrain is relatively low. In the western part of the country, population is sparse; transportation is inconvenient; and terrain is very high. The entire Tibetan high plateau averages more than 4,000 meters above sea level. For historical reasons, customs and habits, and degree of culture also shows extensive differences. There are two different regions for which there should be two different national land programs for development and use, preservation and administration. Our study of the western regions is currently comparatively weak, yet it is precisely this region that can take large numbers of China's population. In terms of nationality relationships, the east is inhabited largely by the Han nationality, while the west is where national minorities live.

Unlike international north-south problems, though China's south and north have some differences in the extent of their development, this is not their major distinguishing characteristic. In the north and northeastern regions, heavy industry is very developed. The coastal region of the north is also a developed region. In China, climatic conditions are a major point of difference between south and north. The north is dry while the south gets copious rainfall. Great differences also exist in minerals. The region with the most abundant coal resources, for example, is the north, in Shanxi, Nei Monggol, and the Northeast. In the southeastern and south central region, coal is lacking. Efforts to divert northern coal to the south have not met with success. Problems between south and north include problems in distribution of labor between south and north, and problems in cooperation between south and north.

The tenth problem, cities and rural villages.

Inasmuch as the national land of which we are talking includes national land that has already been transformed by human activities, the land of rural villages and cities constitutes not only a foundation, but when taken together with structures on the land, also belongs to the concept of national land. In the study of national land economics, we must attach importance both to rural villages and to cities. In rural villages where people are engaged in agriculture, forestry, and animal husbandry etc, national land economic problems exist. The urban economy also takes land. It has a geographical position on national land problems of rural villages, in addition to land required for production is land required for construction of dwelling sites, rural road construction, and such problems. Rural construction requires clear guiding ideas and must be planned. China's rural construction is very important. The current situation in which rural villages take up good farmland merits very much attention, one of the reasons being a blindness in use of land. Prior to the war against Japan, some bourgeois scholars formed a "rural construction faction," which in terms of its ideological bent and political bent was antithetical to the anti-imperialist, anti-feudal revolutionary movement led by our Communist Party. Where we called for revolution, they advocated reform. Now that we are carrying our socialist construction, we need numerous people who are enthusiastic for rural construction, both old people and young people. Now we ought to have a rural construction faction with a lot of people in it—a socialist new village construction faction. We need people enthusiastic about



the study of rural villages, about how to make production develop, about how to improve living standards, about what is the most suitable way for people in different regions to build houses, about what kinds of construction materials to use, about what the design of dwellings should be, about what fuels are most suitable, about how general use of methane can become a reality; about the degree to which electrification should be achieved in a given period of time, about how to solve problems in rural roads and rural transportation, about requirements for rural culture, education, and sanitation, about how rural services should be developed...all these things require concern. In China today, 80 percent of the population lives in rural villages and the problem of rural villages construction is an extremely important one. In order to do this job well, fairly great improvements will have to be made in rural village construction, so that people will be at ease about rural village conditions. Life in a rural village has inconveniences of many kinds, and no particular attention is given politics or work. That young people are not content in rural villages is a very big problem. Means must be found to solve it. Right now, one not very good situation is that all eyes look toward the cities. People in society cannot be entirely blamed for this. This has to do with our situation in many of its aspects and with our work. Were life in rural villages not so much inferior to life in cities, people would not look toward the cities. This also has something to do with some of our prevailing systems and policies. For example, regional wage scales were set on the basis of price differences in various places in the period immediately following Liberation. Subsequently prices became the same in all areas, but very great differences in wages continued. As a result, the more poverty stricken a place, the less concern for standards of living. Some comrades have told me that living subsidies in the Xining region of Qinghai Province are higher than in the much more poverty stricken Muangzhong region. This is a policy question. When policies are not set properly, people do not want to go to rural villages, and this is extraordinarily bad for our construction of rural villages. We should make our policies encourage youth to find contentment in rural villages or find contentment in border regions.

The foregoing has talked about rural villages, but problems in urban construction also require a loud cry of warning. The formation and development of cities is an inevitable tendency in economic development. In the building of socialism, all around consideration must be given to what kind of cities are to be built on our national land, their location, their size, their characteristics, and the orientation of their development. We have to do a good job of population spread and, most important in this regard, is planned facilities in cities. Right now we do not have such plans, and no one is responsible for conducting studies of this kind. We do not advocate blind development of large cities, but without relevant planning, this problem cannot be fundamentally solved. Strict control over the flow of population into large cities cannot, by itself, solve the problem any more than it has in the past. Going from rural residential areas to small towns, to county seats or to small cities that are the equivalent of county seats, going to medium size cities, to large cities, or to exceptionally large cities such as Shanghai and Beijing requires a total conception. This is also one of the most important tasks in national land economics.

In addition is urban construction itself. For planning work in this regard, there are indeed people and organizations responsible. However, in a period

of more than 30 years, not even in the capital city has a plan been presented to the inhabitants. In this regard, work in China also lags behind that of numerous countries in the world. In urban construction per se lie problems in equitable use of national land. For example, how should homes of residents be designed so as to make most equitable use of land; how should the problem of land to supply vegetables to urban areas be solved; and what liaison should be established between large cities and rural villages are all problems to be considered.

The eleventh question is national land and public land.

Public land is a term I made up. I use this term to mean land that does not belong to any country, or land that is the public property of all the countries of the world. High seas is a term that everyone is in the habit of using; however, the world's public lands consist of more than just the high seas. Antarctica is also publicly owned. Space beyond a certain number of kilometers, I fear, has not been, as yet, designated as belonging to the country directly beneath it. Therefore, it is best to use the term public land to mean that empty land on the globe that does not belong to any country. Since it is public land, all that is needed is the strength for us, like other countries, to make use of it. This is our right, and one that we should be concerned about. For example, the tracks followed in space by synchronous communications satellites are limited. Unless we take possession of a certain position, somebody else will occupy it.

The twelfth question, partial and total.

In the foregoing we talked of the problem of this portion of national land and that portion of national land. In modern society, close intercourse exists between people living in this portion of the national land and that portion of it. A lot of transportation of goods takes place, and there is also a rapid exchange of information so that all of society has become a totality. Numerous problems about national land economics will be solved in the realm of the country as a whole. So national land problems are closely related to communications problems (including electrical communications). Development plans for part of national land are also closely related to development of the land of the entire country.

It has been national land itself that has been discussed in these 12 problems. The second part discussed problems of national land classification, national land and the ecology, national land and population, and national land and communications. In this way I have covered most of the topics that have occurred to me. Our task is to carefully investigate these problems and to get a large amount of material about them, as well as to carry out a penetrating study to arrive at scientific conclusions. Our task is a large one requiring good organization of existing forces. In addition, it is necessary to plan large scale training of people for this purpose. Today, though the organs of state power in China are huge, those we need are still lacking. One example is a national land renovation management organization, which is still in process of formation. China's various intellectual organizations are not complete and are relatively weak. In handling the issue of intellectual organizations, we

should not use the same methods used to handle organs of national power. The former should be streamlined, while the latter also has to oppose a situation of an inordinate number of incompetent people. However, specialized talent with genuine knowledge should be given opportunity to make full use of their skills and change the present situation that can be generally termed weak.

There is nothing mysterious about building a new field of knowledge. Looked at in terms of numerous fields of knowledge, there is a fundamental guiding idea. In the building of a field of knowledge, methodology is a consideration after which comes steady work, steady accumulation, the writing of books and reports to establish a body of knowledge. Many have been established whose importance and whose foundation are far less than that of the field of national land economics. Much less do they have the large quantity of survey materials for a foundation that this branch of learning has, or the assistance of numerous neighboring fields of learning. All of us are very enthusiastic, and the Chinese National Land Economics Research Society has been established. In addition, socialist construction has urgent need of this field of learning, and the work of managing national land and renovating national land has been placed on the agenda of the party and the state. The branch of learning of national land economics, I believe, can be smoothly established.

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NEW EMPHASIS GIVEN YIELDS PER UNIT OF AREA IN RESTRUCTURING OF AGRICULTURE

Fuzhou FUJIAN RIBAO in Chinese 1 Jan 82 p 1

[Article: "Total Output Value of China's Agriculture Increases More Than 15 Percent in Three Years. Readjustment of Internal Structure of Agriculture and of Crop Patterns Wins Fine Achievements"]

[Text] China's readjustment of the internal structure of agriculture and of crop patterns has won fine achievements. Despite frequent national disasters during the past 3 years in which grain output has risen rather than fallen, the total output value of agriculture has increased at a five percent rate annually. Comparison of 1981 with 1978 shows an increase of about 15 percent.

According to data from each province submitted to higher authority, a comparison of 1981 with 1978 shows a reduction by more than 100 million mu in the national area sown to grain, but an increase by more than 30 billion in grain output nevertheless, making it the second highest year for grain output since the founding of the People's Republic. In 1981, outputs of cotton, oil-bearing crops, and sugar crops increased by 31, 80, and 32 percent respectively over 1978. Outputs of mulberry cocoons, tea, and flue-cured tobacco increased by 44, 21, and 12 percent respectively. Such tremendous increases in output of these economic crops has been rarely seen since founding of the People's Republic. Only jute and amberi hemp among the economic crops have declined in area sown, their outputs falling, this the result of development of artificial fiber production. The livestock industry, forestry, and aquatic products have also steadily increased in output or output value. In 1981, hog, cattle, sheep and goat total outputs increased more than 38 percent over 1978. Commune and brigade enterprises showed healthy development. Commune household sideline occupations were filled with vitality, and home poultry raising reached all-time highs.

With the equitable readjustment of the internal structure of agriculture and of crop patterns, agriculture not only provided the state greater amounts of processed raw materials, enlivened city and country markets, and strengthened the collective economy, but also improved the lives of the peasants. In poverty stricken regions with a population totaling 150 million, in particular, improvements in the lives of the masses was even more spectacular. Today, a new situation of political stability, economic prosperity, and peace of mind pervades the rural villages of the country. Commune members say that now policies are good; there is enough to eat; people are content; and zeal is high.

Readjustment of the structure of agriculture began in the wake of the Third Plenary Session of the 11th Party Central Committee.

Today all jurisdictions are acting in accordance with the program put forward by the CCP Central Committee and the State Council for "active development of economic diversification with positively no relaxation in grain production" to formulate plans for readjustment of the structure of agricultural production, which are characterized by the following: Maintaining generally stable the present ratio of grain and economic groups grown, but giving greater attention to increased yields per unit of area to increase total output. The future focus of readjustment will be on development of mountain regions, water surfaces, and grasslands, as well as on improvements in the ecological environment, on equitable use of all the land of the country, and further implementation of the party's policies in development of economic diversification for the good of both the collective and individuals. In short, it is intended that efforts over a not very long period of time will gradually build an economically diversified and comprehensively developed equitable production structure in China's agriculture. In this way our avenues will become ever broader, and the agricultural situation will become increasingly better.

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CSO: 4007/173



AFFORESTATION DRIVE GATHERS MOMENTUM

OW141145 Beijing XINHUA in English 1223 GMT 12 Mar 82

[Text] Beijing, 12 Mar (XINHUA)--Workers and cadres across China, including Beijing's first Communist Party Secretary Duan Junyi and Mayor Jiao Ruoyu today involved themselves in a national tree-planting drive in response to a government greening campaign. The first secretary and the mayor planted trees in Lianhuachi, a Southwest Beijing park.

In the past few days, Shanghai government, party and army leaders each planted three trees while forestry specialists in the capital campaigned in the streets to promote the drive. Fifty of them set up a booth in Beisd's downtown area selling popular science books, pictorials and journals on afforestation and prevention of tree pests and answering all kinds of questions concerning the subject.

Trees are being planted on the dykes of the Yellow River in Henan and Shandong provinces while in Inner Mongolia, 26 counties have agreed on forestry quotas. Northern Jiangsu Province's Xuzhou Prefecture, often victimized by floods, drought and sandstorms, has incorporated its tree-planting plan into its overall farmland improvement program.

Provincial leaders in Jiangsu, Hunan, Fujian and other provinces, have taken the lead in this drive. Since late January's spring festival holiday, Xu Jiatao and other officials in Jiangsu have planted 1,200 pines, metasequoia, sweet-scented osmanthus trees and 20,000 box trees.

Together with other government functionaries and 500 gardeners, Hunan officials have planted 2,000 camphor, sassafras and other trees on the scenic Yuelu hills near Changsha. Fujian officials have afforested a Fuzhou park. Anhui Province's Hefei city government has set afforestation quotas and targeted sections of land to be planted by its subordinate offices. Factories, offices, schools and army units in Jinan, Shandong Province, have also been asked to participate.

In cities with insufficient tree saplings, manpower, materials and funds have been channeled into improvement of tree and grass nurseries and flower gardens.

Officers and soldiers of the People's Liberation Army will plant trees within 10 kilometers of their barracks. Soldiers in Wuhan helped plant trees along streets and scenic areas in the past 2 months while frontier guards in Guangxi joined border residents in afforesting barren mountains.

The P.L.A. Beijing units will contribute 130,000 workdays to the afforestation effort.

CSO: 4020/104

TREND OF LIVESTOCK INDUSTRY DEVELOPMENT DISCUSSED

Hong Kong CHING-CHI TAO-PAO [ECONOMIC REPORTER] in Chinese No 6, 15 Feb 82  
pp 20, 25

[Article: "Development of China's Livestock Industry and International Cooperation--Interview With Deputy Minister of Agriculture Cai Ziwei [5591 1311 0251]

[Text] Editor's Note: China and Australia have cooperated in setting up at Nanshan in Hunan Province the Nanshan demonstration pastureland on an area of 420 hectares. China has cooperated with New Zealand to establish at Liabin County in the Guangxi Autonomous Region the 1,200 hectare Qianjiang demonstration pastureland. Using free assistance given by the United Nations Development and Plans Office, the Food and Agriculture Organization invited experts to guide the building of a demonstration pastureland in Wengniute Banner, Nei Mongol on which construction has already begun. In June last year, the International Agricultural Development Fund signed a long term low interest loan agreement for 35 million yuan with China.

Last October, the Ministry of Agriculture convened the National Agricultural Work Conference in Beijing. One of the main topics of the conference was the summarization and exchange of experiences during the past several years in the rapid development of China's livestock industry, with discussion as to how to further hasten the speed of development of the livestock industry today and during the period of the sixth 5 Year Plan. After the conference, the correspondent interviewed the deputy minister of agriculture responsible for the livestock industry, Cai Ziwei, asking him to give a briefing on the development of the livestock industry.

Recent State of the Livestock Industry and External Cooperation

Cai Ziwei said that the present development of China's livestock industry is such as has been rarely seen in the more than 30 years since the founding of the People's Republic. This is manifested principally in the following: An increase in the quality of various kinds of livestock and poultry, and a



gradual increase in various kinds of livestock products; achievements in the improvement of livestock and poultry, some superior varieties having been successfully bred; increase in international exchange and cooperation in the livestock industry.

Following 2 years of all around development of China's livestock industry, the growth trend continued to be maintained last year. In 1980, total output of beef, pork, and lamb [or goat] for the country was 24.1 billion jin, a 7 billion jin increase over 1978, the all time high in China's history. During the first half of last year, 92 million head of live hogs were removed from the country's inventory, an increase of 850,000 head over the same period during the previous year.

At the end of 1980, the number of large herbivorous animals in inventory including cattle, horses, donkeys, and mules numbered 95.25 million head, a 660,000 head increase over the previous year. As of the end of last June, the number showed a 1.02 million head increase over the same period two years ago. In 1980 there were more than 17.4 million more sheep and goats than in 1978, and at the end of last year, 187.31 million of them were in inventory. The raising of rabbits, particularly long haired rabbits, developed very quickly in many places. An estimated more than 200 million rabbits are being raised throughout the country.

In 1980, China's sheep wool output was 351.46 million jin, a 45.12 million jin increase over 1979. Goat hair output stood at 8.01 million jin, a 9.5 percent increase over the previous year. During the first half of last year, the state purchased 193.73 million jin of wool, 5.16 million jin of goat hair, and 6.61 million jin of rabbit fur, a 16, 8, and 54 percent increase respectively over the same period two years previously.

During the past 3 years, extent of increase in output of poultry eggs nationally has been greater.

Improvement in livestock and poultry varieties in China is going along smoothly. Success has been achieved in the breeding of superior varieties of beef cattle. During the 1970's, China introduced nearly 20 different breeds of cattle from abroad. Following breeding to improve varieties, the number of fine breed beef cattle and combination milk and beef cattle now being raised in the country now stands at more than 2 million head. The flesh of fine breed beef cattle is tender in quality and delicious in taste. During the past 3 years, almost 200,000 tons of it has been exported to Hong Kong and Macao where it has been enthusiastically received by consumers. Striking increase in exports again took place last year. In recent years China has established beef production bases in 140 counties where fine breed beef cattle will continue to be grown in future.

China has also had new achievements in the breeding of fine breed fine wool sheep. An average of between 6 and 7 kilograms of fine wool is sheared annually from each mature ewe of this fine sheep breed, the fineness of wool being mostly 64 count, and the rate of clean wool being 50 percent. Within 12 months, the wool reaches a length of from 9 to 10 centimeters. Wool quality

is good; it contains lanolin, and is characterized by great curliness. The Ministry of Agriculture is presently vigorously promoting the growing of this fine breed of fine wool sheep in Xinjiang, Nei Monggol, and Jilin.

Deputy Minister Cai said that the increase in livestock and poultry and the increase in livestock products had increasingly enlivened city and country markets in the country, and the supply situation was gradually improving. Great increase has also taken place in foreign exchange earnings resulting from the export of livestock products. In 1980 foreign exchange earnings from the export of livestock products amounted to \$1.85 billion, a \$320 million increase over 1979. China remained world champion in quantities exported of hog bristles, hog intestines, sheep skin, honey, rabbit fur, and rabbit meat.

The scale of China's technical exchange with foreign countries and international cooperation in the livestock industry has expanded year by year. In cooperation with Australia, China established a 420 hectare Nanshan demonstration pastureland at Nanxhan in Hunan Province. In cooperation with New Zealand, Zealand, the 1,200 hectare Qianjiang demonstration pastureland was established in Laibin County in the Guangxi Autonomous Region. Gratis support given by the United Nations Development Plans Office enabled the Food and Agriculture Organization to invite experts to give guidance in the establishment of a demonstration pastureland in Wengniute Banner in Nei Monggol. Work on these projects began in December 1979, January 1980, and in March.

In June last year, the International Agricultural Development Fund signed a longterm low interest loan agreement for 35 million yuan with China, and the "China's Northern Grassland and Livestock Industry Development Project" formally became effective. China is now designing and planning the use of these preferential loan funds to try to establish a prototype of Chinese style modernization of the livestock industry.

#### New Changes in the Livestock Industry During the Period of Readjustment

After providing a briefing on China's accomplishments in the livestock industry during the past 3 years, Deputy Minister Cai Ziwei pointed to new changes during the past several years in the field of China's livestock industry as demonstrated in the following four ways:

One is the liberalization of policies, the emancipation of productivity, the elimination of restrictions on peasant raising of livestock and regulations of various kinds prohibiting the raising of livestock and poultry, revival of market trade and livestock trading markets, and the appearance in many places of the country of an upsurge in the peasant raising of hogs, cattle, sheep and goats, rabbits, and chickens. Formerly few peasants privately raised cattle, but in 1980 the number reached 8.66 million head, or 12.2 percent the total number of cattle in the country. In places with facilities for the processing of milk products, commune member raising of milk cows has developed especially rapidly.

The appearance of a group of key households, and specialized households engaged in the raising of livestock and poultry, is a new phenomenon in China's development of the livestock industry.

Second is the gradual implementation of systems of responsibility, which has brought about the consolidation and development of state livestock breeding farms and livestock pastures giving a new lease on life to the collective livestock industry economy. The systems of responsibility for production practiced in pastoral regions today are not the same in name, in substance, or in character; yet they do have common characteristics. The means of production (meaning mostly livestock and the grasslands) substantially adhere to a system of public ownership; egalitarianism has been surmounted in distribution, which embodies, in varying degrees, the principle of distribution in accordance with work. Specialized contracting, the linking of remuneration to output, and practice of such various forms of a system of responsibility for production has meant that numerous hog, cattle, sheep and goat raising farms have been able to convert losses into gains, individuals getting more, the collective earning more, and the exchequer deriving more revenues. In 1980, total national output value of livestock breeding farms was 278.46 million yuan, a 103 percent increase over 1979.

Third is readjustment of the structure of farming and livestock industry structure and of the internal structure of the livestock industry, which has won results. In many places during the past several years, the livestock industry has developed rapidly, the livestock industry increasing its proportion of the local economy. Output value of the livestock industry in the country as a proportion of total agricultural output value climbed from 13.1 percent in 1978 to 14.2 percent in 1980. Increase in herbivorous animals such as cattle, sheep, goats, and rabbits, was fairly rapid. The proportion of cows and ewes in herds increased, and the survival rate from breeding increased.

Fourth, more and more farmers and herdsmen give attention to selection of breeds, the formulation of feeds, and prevention and control of epidemic diseases. They conscientiously study and burrow into science and technology and the practice of scientific animal husbandry. The former situation in which number of head of cattle in inventory was the sole pursuit in livestock breeding and production with no emphasis on increase in the final product has been reversed. Today there are 55,800 veterinary medicine stations at all levels in the country, and breeding farms, livestock improvement stations, breeding stations, and frozen semen stations total 2,600. Including grassland work stations and such livestock veterinary medicine enterprises and unit units, the country has 580,000 veterinary medicine personnel.

#### Prospects for Development of the Livestock Industry

Deputy Minister Cai continued talking to the correspondent about the questions of the need for continued development of China's livestock industry and how it would develop.

He said. He said that even though very good accomplishments had been made in development of the livestock industry during the past 3 years; nevertheless, it was still a very far way from being able to satisfy the daily increasing needs of the material lives of the people. At the present time, the standard

of living of China's people rests mostly on grain and vegetables supplemented by meat and eggs. In 1980, national average per capita consumption of meat was only 24.5 jin, and of eggs between 5 and 6 jin. This standard is still very low. If the people of the country are to live a "comfortable life" by the end of this century, continued vigorous development of the livestock industry will be necessary.

Today the gradual improvement in the livelihood of urban people has steadily placed new demands on livestock products. On the one hand there is increased demand for lean pork and for beef, and lamb as well as for fresh milk and poultry eggs. On the other hand, the need for industrial goods used in daily life made from hides and hair also has become increasingly great. In addition, the number of draft animals used in agriculture and female livestock animals of proper age also require further development.

Cai Ziwei said that the livestock, industry in China requires great development, and conditions exist for great development as well. In China there is 3.3 billion mu of grasslands that can be used, 1 billion mu of grassy mountains and grassy slopes, several hundred million mu of grasslands in forests, and 200 million mu of ocean beaches, which are precious resources for development of the livestock industry. Most of the large quantities of stalks and stems, husks, and cake residues from farm crops, and more than 100 million mu of green manure crops make good fodder for livestock. Formerly use of these resources was sometimes inequitable, sometimes insufficient, and sometimes not at all.

About 30 percent of the workforce in the farflung rural villages of China is surplus. Following institution of various economic policies in rural villages and the implementation of systems of responsibility for production, a large amount of the workforce is being converted to economic diversification. The adaptation of general methods to local situations for the development of hog raising, cattle raising, sheep and goat raising, poultry raising, rabbit raising, and beekeeping can soak up a large amount of the workforce. Once these raising industries have developed, local processing can also soak up large quantities of the workforce. Abundant workforce resources is yet another advantage in China's development of a livestock industry.

Deputy Minister Cai said that the program set for development of the livestock industry at this national agricultural work conference was as follows: Guided by the principle of comprehensive development of farming, forestry, and livestock, pastoral areas are to be used chiefly for livestock, emphasis going to development of economic diversification in livestock industry production. Farming areas should combine farming, forestry, and livestock, with all around development of a livestock industry and the adaptation of general methods to local situations to make the most of advantages, and lay stress on key points. Suburbs of large and medium size cities should mostly produce milk, poultry, eggs, and meat. The conference adopted some concrete policies and actions to be taken for development of the livestock industry including the following:

Active development of household livestock raising industries, support being given for capital, fodder, and superior breeds.

Further implementation of systems of responsibility for production, with proper handling of production and marketing relationships, and continued operation of pilot projects for integrated livestock, industrial, and commercial enterprises.

Continued restructuring of livestock industration administration systems.

Increased production of fodder grass and feeds

Vigorous advocacy of scientific livestock raising. Training of more livestock, veterinary medicine, and grasslands scientists and technicians.

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CSO: 4007/259



WELL BEING OF RURAL VILLAGES PORTRAYED

Hong Kong CHING-CHI TAO-PAO [ECONOMIC REPORTER] in Chinese No 6, 15 Feb 82 p 19

[Article by Yang Qingwen [2799 1987 2429]: "Brief Summary of Agricultural Production and Peasants' Livelihood"]

[Text] Despite the continuous occurrence of severe floods and droughts in some provinces and autonomous areas of China in 1981, the estimated total output value of agriculture for the country as a whole still showed an increase of about four percent over the previous year. Total output of grain is estimated to have increased by about 30 billion jin over the previous year, close to that of the bumper harvest year of 1979. On the heels of an all-time high record in 1980, a new breakthrough in cotton was made in 1981. After 3 consecutive years of increases in output of oil-bearing crops, continued increase occurred again in 1981. It may be said that all around increase in output of 12 different crops including grain, cotton, edible oil, hemp, silk, tea, sugar, vegetables, tobacco, fruit, medicinal materials, and miscellaneous crops occurred. Meat, eggs and fruit also registered varying degrees of increase. This was a change from the past when increases in output of grain meant reductions in economic crops and contraction of economic diversification.

Accompanying all around increases in output from agriculture and a raise in purchase prices paid for farm products has been another obvious increase in peasant income in 1981 on top of fairly great increases during the 2 previous years. As of the end of November, rural savings deposits this year were up 29 percent over the same period last year. Rural savings per capita nationwide amounted to somewhat more than 23 yuan, somewhat more than five yuan more than at the end of the previous year. In Guangdong Province peasant savings have steadily increased year by year. In 1978 commune members' saving amounted to almost 670 billion yuan, and in 1981 this leaped to almost 2.2 billion yuan, a more than threefold increase in a three year period. In the relatively poverty stricken rural villages of Guizhou Province, in 1981 peasant average per capita income for the province increased somewhat more than eight yuan over the previous year.

In the course of the last 4 years, rural villages in China have built 1.5 billion square meters of houses, meaning an average increase of almost 2 square meters per capita for the 800 million peasants in the country. In

rural Jiangsu, almost one-half the peasant households built new houses. In Yanan Prefecture in northern Shaanxi, in the course of 1980 45,800 cave dwellings were built, more than the number built during the past 10 years. Last year another group of new houses was built. Statistics show that 150 million rural households in the country would like to build new houses.

Very great increases has taken place in rural needs for the means of production and the means of livelihood. When the peasants have money, they first develop production, then build new houses, and then marry a wife, and buy a trousseau. Rural requirements for consumer goods have also risen. In addition to the "three great items" (bicycles, sewing machines and wristwatches), they want high and medium quality clothes, television sets, large clocks, and fine furniture.

In rural villages today, discussion groups on scientific farming have exerted considerable attraction on the peasants, particularly on rural youth. Some communes are operating classes in crop cultivation, scientific fertilization, and breeding of varieties which young peasants from all over come forward to participate in. The masses say, "Now that responsibility for fields has been set, everyone is trying to become a technician." Wherever a cadre walks, a large group of people follows." Fuyang Prefecture in Anhui set up 53 technical information sites which received more than 20,000 inquiries between March and September last year.

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CSO: 4007/259

## BRIEFS

FRESHWATER FISH BREEDING INCREASES--Beijing, 10 Mar (XINHUA)--China's 1981 fresh-water fish catch was 1.37 million tons, 29.8 percent more than 1978, according to a national fresh-water fishing conference that opened here today. Pond, lake reservoir and river surface area used for fish breeding is three million hectares, 10 percent more than 1978, said Xiao Peng, director of the State Administration of Aquatic Products. [Beijing XINHUA in English 1224 GMT 10 Mar 82]

PRAWN CATCH EXCEEDS QUOTA--Beijing, 5 Mar (XINHUA)--China's prawn catch in 1981 exceeded the state quota by 11.5 percent, even though some breeding centers were hit by typhoons. Prawns now are bred in 90 coastal counties and cities, compared with only a dozen in 1978. China's prawn industry has expanded with the adoption of artificial breeding methods for prawn larvae. In recent years, a series of measures have been taken to expand prawn breeding. A National Prawn Breeding Company, established in 1979, manages prawn breeding, processing, sales and import and export business. China now has 300 technicians and 500 skilled workers involved in the breeding of prawns. Training courses for the workers also have been conducted in recent years. [Text] [Beijing XINHUA in English 0812 GMT 5 Mar 82]

VEGETABLE COOPERATION GROUPS ESTABLISHED--Xian, 9 Mar (XINHUA)--Three high-yield vegetable cooperation groups have been set up here by agricultural departments and scientific research institutes in 17 cities. The groups exchange production and technical information in an effort to boost vegetable production in big and medium-sized cities. The cities include Beijing, Tianjin, Shanghai, Shenyang, Harbin, Nanjing, Wuhan, Chengdu, Xian, and Lanzhou. Cooperation started in Beijing in 1980 when agricultural departments and scientific research institutes in the capital city organized a group. Using modern vegetable production techniques under the group's guidance, the city's 1,300 hectares of tomatoes averaged 43.5 tons per hectare in 1980, 13.5 tons more than in the previous year, the Ministry of Agriculture said. Per hectare yield reached 45 tons in 1981. An inter-city cooperation group, involving Beijing, Tianjin, Shenyang, Xian, Taiyuan and Jinan, was formed in early 1981 on the advice of the ministry. Experiments on high-yield tomatoes and cabbages were made in the suburbs of these cities. [Text] [Beijing XINHUA in English 1219 GMT 9 Mar 82]

## SUXIAN PREFECTURE REAPS OVERALL BUMPER HARVEST IN 1981

Beining GUANGMING RIBAO in Chinese 11 Jan 82 p 1

[Article by Dong Buxiang [5516 2975 3276] and Shao Changfu [6730 7022 1381]: "Managing the Popularization and Application of Agricultural Science and Technology Like Managing the Production Responsibility System, Anhui's Suxian Prefecture Realizes Overall Bumper Harvests in Agriculture Last Year"]

[Text] Anhui province's Suxian Prefecture is located in the plain north of the Huai River and has suffered from many disasters for a long period. Its agricultural yields are low. But comparison of 1981 and the previous year showed the yield of food grains increased 24.2 percent. The yield of oil bearing crops increased 24.5 percent, and the total agricultural income increased 34.13 percent. Per capita income of farmers was 260 yuan, an increase of 69 yuan from the previous year. Recently, the prefecture committee summarized the situation in agricultural production and believed that implementation of the production responsibility system has stimulated the farmers of the whole prefecture to actively learn science and use science, and it has improved the standard of scientific planting. This is an important reason for the realization of bumper harvests in agriculture.

In recent years, the Suxian prefecture committee strengthened leadership in scientific planting. A deputy secretary took charge of this work, and he frequently conducted studies, planned, inspected, summarized, helped the agricultural department solve some of the practical problems in the popularization of agricultural techniques. The prefecture committee and the administrative office relied on agriculture technicians and cadres and drew up the "plan for the popularization of agricultural techniques in 1981-1985 for the whole prefecture". At the same time, agricultural specialists and technical personnel were organized as the prefecture's agricultural techniques advisory group to serve as a scientific and technical counseling agency to lead production, to participate in decision making, and to solve major technical problems in agricultural production. The main leading members of the prefecture committee and the administrative office led in learning science and using science, frequently listened to agricultural techniques classes, and joined technicians on trips to villages to investigate, study and solve problems.

The Suxian prefecture committee has exerted much effort in popularizing agricultural production techniques that require less investment, that produce many benefits, that produce quick results, and that are easy to implement.

It has popularized in a key way the application of such techniques as the cultivation of superior varieties of agricultural crops, improvement of low yielding soils, comprehensive prevention and control of harmful cotton insects, machine sowing of wheat, sidedressing for the roots, deep application of chemical fertilizers, and plowing green manure under, dense planting of peanuts and irrigation of farmland by spraying and artificial insemination of large domesticated livestock. Attention was also paid to popularizing new techniques in diversification such as cultivation of pearls in river clams, raising martens, and raising silkworms.

Suxian Prefecture also used training classes, field meetings, night schools, broadcasts of lectures, technical counseling, signing technical contracts and many such forms to popularize agricultural science and techniques. According to statistics, the whole prefecture has held over 2,000 technical training classes. It has held training over 50,000 times for technical backbone members. It has held over 2,000 scientific and technical seminars with an audience of over 250,000 and it has printed over 1 million copies of scientific and technical data.

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CSO: 4007/187



'BAN YUE TAN' DISCUSSES ECONOMIC CONTRACTS

HK101230 Beijing BAN YUE TAN in Chinese No 4, 25 Feb 82 pp 21-22

[Article by Gong Xianggeng [7895 7449 1649] and Wu Zheng [2976 2398]:  
"Production Teams Should Pay Close Attention to the Signing of Economic Contracts"]

[Text] At present, of the production teams that have introduced various versions of the contract responsibility system in our Fuzhou area, some have followed the pattern of concluding economic contracts, setting out the economic relationship between the production team and the peasant household, or between the operation group and trained personnel and their respective rights and obligations. This has played a very helpful role in developing production and arousing mass enthusiasm. But due to a heavy workload and the pressure of production tasks, many production teams have still not had time to conclude formal economic contracts with commune members who have actually committed themselves. Even where a contract has been signed, unstable factors still exist. This has, to different degrees, affected the morale of the masses and interfered with the development of production. Therefore, we should act without delay in upholding the spirit of the No 75 document of the CCP Central Committee and the Central Rural Work Conference and handle well the business of concluding contracts in a realistic manner.

On the basis of the production responsibility system, we must extensively introduce an economic contract system. This is an important measure in using economic means to cope with production and distribution within the framework of the collective economy. The contracts for production and for task completion concluded by the production team with groups, households and workers clearly specify the economic responsibilities assumed by the parties concerned. Such contracts can serve not only as plans guiding production but also as rules to be followed in correct handling the "three relationships." Where production teams are committed to contracts for task completion on a household basis, this can take the place of the previous year-end distribution programs. Therefore, we must fully arouse the masses to hold democratic consultations, so that economic contracts can be based on a mass foundation and on policy, become economic instruments which have a binding effect on both sides and also have the teeth of law.

In light of the actual conditions of our prefecture, economic contracts generally cover the following:

- 1) Under the guidance of state plans, production teams arranging to commit households to farming plans for staple crops and production quotas as the basis of production and task completion contracts;
- 2) Assigning the means of production, such as land, mountain forests, water surfaces, farm cattle, farm machines and implements, production facilities, etc, to commune members;
- 3) Assigning purchase quotas and special quotas for grain, cotton, oil-bearing crops, pigs, fish, poultry, eggs and other agricultural and sideline products to be sold by commune members to the state;
- 4) Deducting that which should be contributed by commune members to the production team's collective public funds which include public reserves, public welfare funds, subsidies for "five-guarantee" households and family members of militarymen and martyrs, family planning costs, expenditures on people-run primary schools and other necessary welfare funds;
- 5) Obligating commune members, where public welfare undertakings, voluntary work and so forth are concerned.

Economic contracts that are concluded after democratic consultations and signed by both parties must be observed and their fulfillment must be guaranteed. If one party purposely acts in contravention of a contract, the other has the right to hold the former responsible financially and even legally. If the production team tears a contract to pieces, its relevant responsible personnel should be held responsible. If a commune member who is bound by a contract breaks it, the production team, apart from exercising its right to reclaim land, mountain forests, water surfaces and other means of production assigned to him, can subject him to necessary financial punishment in order to ensure the fulfillment of an economic contract.

CSO: 4007/271

BEIJING RADIO COMMENTS ON AFFORESTATION DRIVE

OW090112 Beijing Domestic Service in Mandarin 1200 GMT 6 Mar 82

[Station commentary: "Strive For Results in Afforestation"]

[Text] The yearly arbor day is approaching. The national voluntary tree-planting campaign is gradually developing. In the upsurge of afforestation to cover the motherland with trees, we must strive for results, be responsible for the planting and survival of those trees planted and make sure that trees will grow into useful timber.

Since liberation, we have planted trees year after year and the areas afforested have added up to 1.3 billion mu. However, only 420 million mu of these areas have actually grown into forests, and some of the trees are of poor quality and of no value as timber. A great deal of manpower, material and financial resources and time have been wasted.

This year is the first year of the national voluntary tree-planting campaign. We must conscientiously sum up past experience and lessons, make a good start and strive for solid, good results. First, we must firmly establish the idea of quality first as our guiding thought and must not practice formalism.

Afforestation is a task of fundamental importance involving hundreds of millions of people. It must be well-planned and carried out in a well-prepared and organized way and with leadership. Everyone taking part in afforestation must earnestly fulfill his responsibility and make sure that every tree planted survives.

Next, it is necessary to practice scientific afforestation. Ours is a vast country with varying climatic conditions. It is necessary to select suitable tree stocks depending on local soil, weather, topographical and geomorphical conditions and other actual conditions.

Many people think there is not much to learn about planting trees. That is a misconception. Different trees have different living habits and characteristics and require very different natural conditions. We should follow the principle of planting trees according to local conditions and must not act rashly.

To achieve the expected results in afforestation, the key lies in effectively implementing forestry policies. It is necessary to ensure the "three fix's"--to fix mountain forest rights, rights to wastelands and the forestry production responsibility system--so the masses will not only have the enthusiasm in afforestation but will have a sense of responsibility for forest management. Only when policies are correct and remain stable for a long time will the masses' enthusiasm for afforestation be sustained. Only in this way will it be hopeful for trees to grow into useful timber.

Afforestation and covering the motherland with trees is an important strategic task and a great undertaking to benefit future generations. To change the lack of forested areas in our country and basically improve our country's ecological environment will require the hard work of several generations of people. A journey of 1,000 li begins with the first step. If we start now, work in a down-to-earth way and make solid progress, the great goal of covering the motherland with trees will assuredly be accomplished.

CSO: 4007/269

BEIJING VEGETABLE SUPPLY SITUATION REPORTEDLY IMPROVED

Beijing BEIJING RIBAO in Chinese 1 Jan 82 p 1

[Article by Wu Maodong [0702 2021 2767]: "Suburban Beijing Vegetable Farmers Last Year Sold 2.1 Billion Jin of Vegetables to the State. Vegetable Area Communes and Brigades Strictly Observe Policy of 'State Monopoly Purchase and Exclusive Selling Rights,' and Strictly Fulfil Contracts Signed with Commercial Units, Strive to Deliver to Market in Accordance With Quotas and Plans, Enthusiastically Serve the City, and Assure Vegetable Supplies in the Capital's Markets. Supplies Still Not So Good in Some Areas, With Not Much Seasonal Varieties in Some. Broad Masses of Vegetable Farmers Resolve to Further Upgrade Vegetable Output Levels to Make New Contributions in Providing Vegetables"]

[Text] The correspondent has learned from the authorities concerned that in 1981 suburban vegetable farmer sales of vegetables to the state totaled 2.1 billion jin. This is a manifestation of vegetable farmer love of country, having the cardinal principles in mind and taking the overall situation into account, concern for the overall situation, and caring about work style. They have enthusiastically served the city, and have made a contribution in assuring a vegetable supply to the markets of the capital city.

In 1981, Beijing was more than 90 percent self-sufficient in vegetables. These vegetables plus those brought in from elsewhere meant the daily marketing of close to 6 million jin for a daily per capita consumption averaging more than 1 jin for the residents of the city and towns of the municipal area.

Last year the vegetable growing areas of the municipality further instituted a program of "taking vegetables as most important," and "service to the city." While generally establishing various forms of a system of responsibility for production, all communes and brigades vigorously launched scientific farming. They gradually enlarged the growing area in preserves, actively promoted advanced farming techniques and superior varieties, and equitably adjusted crop sequencing. Taken together with favorable climatic conditions, this made for pretty good vegetable harvests and no lowering of output. This showed up rather noticeably during the slack season. Because of circumstances in the Beijing area, during the three months of April, August, and September in every former year, market supplies of vegetables have been fairly short, and in some years there has even been a dearth of them. Last



year saw improvements in vegetable supplies during the slack season. In the 2 months of August and September alone, the vegetable growing areas provided the capital's market with more than 410 million jin of commodity vegetables for a situation better than in previous years. At the end of last December, the Municipal CCP Committee and Municipal Government held a conference in which 212 production teams received commendations and awards for their achievements in providing supplies during the slack season of August and September.

Under the guidance of the state plan, all communes and brigades in vegetable growing areas have striven in every way possible in accordance with market demand to produce varieties that sell. Things like persimmons, big chili peppers, and melons, fruits, and pulses rather favored by the people of the city have increased by more than 30 million jin over previous years for further changes in the composition of available varieties. During the months of June and July alone, more than 140 million jin of persimmons reached market, an increase of more than 30 million jin over the same period in previous years for a second all-time high, and for an initial change in the short supply situations of the past few years.

In order to assure market supply, each of the communes and brigades in the municipal vegetable growing area last year instituted a policy of "state monopoly purchase and exclusive selling rights," and strict fulfillment of contracts signed with commercial units to make market deliveries in accordance with quotas and plans. Numerous communes and brigades sold vegetables to the state whenever they had any, determinedly refusing to divide and sell them privately. During a very recent period, some unscrupulous dealers intent on speculation and profiteering scurried around the close-in suburbs offering high prices to vegetable growing teams for their vegetables. But cadres and commune members told them: We sell our vegetables to the state; we won't sell them to you at any price!

In summary, supply of vegetables was not bad last year, but was still not too good in some places, and some seasonal varieties were not very plentiful. Most recently the municipality put forward a policy of unswerving implementation of "taking vegetables as most important," to place vegetable production in a premier position. Vegetable production must be regulated mostly by plans; there can be no growing of whatever one likes. Vegetable fields must be cherished and neither permitted to be rented out nor used just as one likes. Scientific research should be strengthened to upgrade vegetable output. The broad masses of vegetable farmers have further upgraded vegetable output levels in accordance with municipal demand to make a new contribution in supplying vegetables during 1982 and succeeding years.

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## INCREASES IN AVERAGE PER CAPITA COLLECTIVE INCOME DISTRIBUTIONS REPORTED

## Income Up in 41 Counties

Fuzhou FUJIAN RIBAO in Chinese 16 Dec 81 p 1

[Text] Statistics from the province's rural work committee, which was convened a few days ago, show that in 41 of the province's counties and municipalities this year, rural village per capita income (the collective distribution portion) amounted to more than 100 yuan. This means a doubling over last year in almost two-thirds of the province's counties and municipalities.

In eight of these counties and municipalities the average per capita collective portion of income was more than 150 yuan. They were Sanming City, Changtai, Jianyang, Shaowu, Changle, Longhai, Zhaoan, and Jianning. Places in which per capita income averaged between 100 and 150 yuan included Nanping, Shunchang, Pucheng, Jianou, Songqi, Chongan, Guangze, Zhenghe, Ninghua, Mingqi, Yongan, Qingliu, Shaxian, Jiangle, Taining, Longqi, Minqing, Yongtai, Fuqing, Shanyou, Xiafu, suburban Xiamen, Xinglin, Tongan, Zhangzhou City, Nanjing, Zhangfu, Dongshan, Yunxiao, Huanan, suburban Fuzhou, and Huangcheng. Sanming City, which has been a front runner in the collective portion of average per capita income, this year took first position in the province again with an increase from 154 yuan to 175 yuan.

As a result of the implementation of various forms of a system of responsibility for production, arousal of the enthusiasm of the masses, adaptation of general methods to local situations to make the most of advantages, readjustment of agricultural crop patterns, and development of economic diversification, this year these communes and municipalities, in which the collective portion of average per capita income amounted to more than 100 yuan, won general all around increases in production and earnings in agriculture. In the 10 counties and municipalities of Jianyang Prefecture where the collective portion of average per capita income has been rather high for many years, per capita income averaging 136 yuan, every county averaged more than 100 yuan per capita, and in Guangze and Pucheng counties, per capita income increased 20 and 35 yuan respectively. In Zhangfu, Xiafu, and Yongtai counties, where average per capita income has been below the average for the province, an all around bumper harvest was obtained in this disaster year in both grain and economic diversification. Both grain and money were abundant, and the collective portion of average per capita income was more than 100 yuan, for

increases of 30 and 40 yuan respectively, making them the counties with the greatest increase in income in the province. In Nanjing County, which this year sustained particularly heavy flood damage, though grain output suffered from the disaster, thanks to efforts in economic diversification the collective portion of average per capita income also increased from last year's 100 yuan to 114 yuan.

#### Increases in More Than 200 Brigades

Fuzhou FUJIAN RIBAO in Chinese 16 Dec 81 p 1

[Article by Zheng Yizheng [6774 5030 2973]]

[Text] Rural production brigades in the province with average per capita incomes (collective distribution portion) of more than 300 yuan rose in number from 53 last year to 224 this year, for a 3.2 fold increase.

This year's standout crop of production brigades were commonly characterized in the following ways: All were rather ideologically emancipated. They were able to conscientiously carry out party policies in rural villages and adept in administration and management leadership teams. They were able to build various forms of a system of responsibility for production in accordance with the desires of the majority of the masses. They were skilled in making the most of local manpower and resources for development of economic diversification and brigade run enterprises. The Yanling Production Brigade of Mantanghong Commune in Quanzhou City organically combined farming, forestry, livestock raising and sideline occupations, each of them promoting the other. As a result, the collective portion of average per capita income this year increased from last year's 280 yuan to 370 yuan, vaulting it into the ranks of the standout brigades. Yangfang Production Brigade in Chengguan Commune, Sha County is an advanced brigade that has developed farming, industry, and sideline occupations in an all around way. Last year its collective portion of average per capita income reached 310 yuan. Though early grain crop output this year declined as the result of calamity, thanks to the firm attention given economic crops and brigade run enterprises, income increased. In addition to the 600,000 yuan in public accumulation funds retained, an average of somewhat more than 324 yuan per capita remains for distribution to commune members.

Some production brigades sensibly readjusted the structure of their agriculture this year to make the most of local advantages, the economic benefits derived being more remarkable. Yaoxia Production Brigade in Guzhu Commune, Yongding County is suited to the growing of flue-cured tobacco. This year they had self determination, and the entire brigade made major plantings of flue-cured tobacco. Average per capita earnings from this crop alone amounted to 224 yuan. Caiban Production Brigade in Jiuhu Commune, Longhai County made the most of its advantages for the growing of narcissus flowers, expanding their planting to 140 mu. From this crop alone, increased per capita earnings amounted to 212 yuan, and the collective portion of average per capita income for the entire brigade this year may reach 530 yuan. Kengyuan Production Brigade in Shuangyang Commune, Zhangping County energetically developed production of dry

bamboo shoots, and this year average per capita collective income may be more than 500 yuan. Some fishery production brigades along the seacoast implemented systems of responsibility after which both the catching and the hatching of aquatic products developed. Liansheng Production Brigade, in Guantou Commune, Lianjiang County and Haiqiong Production Brigade in Jingfeng Commune, Huian County had average per capita collective incomes of more than 1,200 yuan. The masses praised the system of responsibility for bringing prosperity to the brigade and plenty to the people.

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## SHAOWU COUNTY COMMODITY GRAIN SETS RECORD

Ruzhou FUJIAN RIBAO in Chinese 11 Dec 81 p 1

[Article by Fang Yurui [2455 3768 3842], County Reporting Office; Li Shengyuan [2621 516B 3293] and Wu Peigen [0702 1014 2704], County Farm Office: "Shaowu Peasants Correctly Handle Relationships Among the Three. [State, Collective, and Individuals] Sales of Grain by Somewhat More than 1,600 Households Exceed 10,000 Jin, Average Per Capita Grain Sales Being 820 Jin to Exceed the All-time High"]

[Text] Shaowu County, northern Fujian Province's major commodity grain production area, reaped a bumper grain harvest this year after which the broad masses of commune members eagerly sold excess grain to the state. There were more than 1,600 households in the county that sold 10,000 jin of grain, commune members in five such households selling more than 20,000 jin. Commodity grain supplied the state from the county averaged more than 820 jin per capita to exceed the all-time high.

In Shaowu County, more than 70 percent of all production teams practiced a system of responsibility this year of either contracting production to individual teams or to individual workers, which aroused the enthusiasm for production of the broad masses of commune members resulting in a bumper agricultural harvest. Grain output for the county increased by more than 11 million jin over last year, and average per capita output of grain was 1,647 jin. Following the bumper grain harvest, the broad masses of peasants praised the party's policies and did not forget to support building of the four modernizations, eagerly selling grain to the state. According to incomplete statistics, peasant households in the county who asked to sell more than 10,000 jin of grain numbered somewhat more than 1,690 a 1.5 increase over last year. Among them were five households of commune members who sold more than 20,000 jin. Xiedang Production Brigade in Dazhu Commune, and Gushan Production Brigade in Yanshan Commune, both of which had fairly tremendous increases in output, had more than 230 commune member households each of which asked to sell more than 10,000 jin of grain. Commune members in five households, including those of Chen Qingrong [7115 3237 2837] and Liu Wenzhong [0491 2429 1813] sold 60,550 jin of grain to the state from the first crop, and received a commendation from the commune. In Datian Production Team with 11 commune member households, seven households realized plans for households to sell 10,000 jin of grain. Commune member Zheng Zuowu [6774 0155 2976] sold the



state 10,607 jin of grain from the first crop and another 9,500 jin from the late crop. Commune member Huang Youliang [7806 2589 5328] of Shuqian Production Team, Hushu Production Brigade undertook responsibility with the production team for the farming of 32 mu from which he harvested more than 15,000 jin of grain in excess of quota, and sold the state more than 20,000 jin of excess grain. Numerous peasant households not only sold much grain but sold good grain. Wangbanjie Production Team commune member Wu Peirong [0702 1014 2837] hired a vehicle and sent to the grain station for sale to the state more 10,600 jin of first quality well filled out paddy after he had dried and winnowed it. Somewhat more than 300 jin of paddy that had deteriorated as a result of having been soaked with rain, he kept for consumption.

Eagerness to sell grain on the part of the broad masses of peasants has given impetus to the work of grain units. In this county, grain units have set up an additional 10 grain purchasing sites and have sent 26 persons into rural areas to work with grassroots levels in grain procurement work. As of 6 December, the county had fulfilled 96.7 percent of its grain procurement quota. Because storage capacity cannot keep pace, some of the grain from the 10,000 jin of grain commune members has not yet gone into storage.

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PUTIAN PREFECTURE BOOSTS WHEAT GROWING

Fuzhou FUJIAN RIBAO in Chinese 7 Dec 81 p 3

[Article by Fang Zhunhua [2455 2182 5478], Putian Prefecture Liaison Station: "Putian Prefecture Has Planted 340,000 Mu of Wheat, Barley and Naked Barley. Adapts General Methods to Local Situation in Large Planting of Wheat"]

[Text] Putian Prefecture has made the most of its good natural resources and abundant workforce resources to do a conscientious job of winter planting. The prefecture has already planted 341,000 mu of wheat and barley for completion of 60 percent of planting plans.

This year Putian Prefecture got a head start on winter planting. During the autumn harvest, the Prefecture CCP Committee and government administrative offices convened meetings to make specific assignments of winter planting tasks. They called upon all counties and communes to conscientiously honor the self-determination of production teams, to adapt general methods to local situations in laying out winter planting plans, to do everything possible to grow more when more can be grown, and to take in hand winter planting, treating it as a major crop. Putian County began winter planting in mid-October, and now 70 percent of the wheat and barley area has been planted. Yongtai County organized a professional winter planting crops personally led by principal leaders who went into the fields to give specific guidance and help solve actual problems. The area to be planted to wheat and barley in the prefecture this year is 560,000 mu, 80,000 more mu than last year.

Additionally the prefecture has also planted more than 200,000 mu to rape, broad beans, and Chinese milk vetch.

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## MORE SCIENTIFIC FARMING, GREATER AGRICULTURAL DIVERSIFICATION URGED

Fuzhou FUJIAN RIBAO in Chinese 30 Nov 81 p 1

[Article: "Next Year's Emphasis in Agriculture on Science and Technology and on Economic Diversification Is Proposal by Comrade Xiang Nan [7309 0589] at Provincial Finance and Trade Work Conference"]

[Excerpts] The secretary of the Standing Committee of the Fujian Provincial CCP Committee, Xiang Nan, said at the Provincial Finance and Trade Work Conference that the situation in agriculture in Fujian Province this year is very good. The guiding principle for the province's agricultural production next year should be the practice of two stabilities and two transformations. By this is meant the stabilization and perfection of systems of responsibility for production in agriculture as a foundation for shifting the work emphasis to science and technology; and while assuring steady increases in grain output to shift the work emphasis to economic diversification, including to forestry, animal husbandry, fisheries, and commune and brigade enterprises.

Xiang Nan noted that in the practice of a program of two stabilities and two transformations, in the field of science and technology Fujian Province would have to take in hand seeds and breeding, and come to grips with equitable use of fertilizer and water to upgrade standards in scientific farming to make the most of the power of agricultural science and technology. In the fields of forestry, animal husbandry, fisheries, and commune and brigade enterprises, the most should be made of Fujian's advantages in having many mountains and broad seas.

Wen Xiushan [3306 4423 1472], [member of the Standing Committee of the Provincial CCP Committee and director of the Provincial Agricultural Commission], said that the Provincial CCP Committee had recently made a study of the entire economic situation in Fujian Province and had proposed that the entire economy of Fujian, beginning in 1982 and after 3 or 4 years of efforts, should take off in 1985. By beginning is meant the year in which the rate of increase in total output value of agricultural production remains steady at around seven percent. By takeoff is meant the year in which the annual rate of increase attains double digits, i.e., above 10 percent. For all economic work, construction of eight bases is to be given serious attention in 1982, with a reading of a "testament to the mountains and the seas." Construction of four bases for forestry, animal husbandry, the fishing industry and

economic crops is to be taken in hand. Launching of a socialist patriotic education campaign centering on "four upholds," "three multiple considerations," and "two oppositions" is to be done in an effort to fulfill an increase in total output value of agriculture of 300 million yuan, a 300 million jin increase in grain output, a 30 yuan increase in average earnings of commune members (including income from both the collective and from household sideline occupations), and control of the net natural rate of increase at 10.5 per 1,000.

Speaking to issues in the system of responsibility for agricultural production, Wen Xiushan said that we should continue to put into effect pertinent directives from the Central Committee, adhere to the principles of adaptation of general methods to local situations, tailored guidance, and permitting economic diversification without change. This is to say adherence to the collective road in agriculture for a long time without change, public ownership of the basic means of production (mostly land) for a long time without change, building of systems of responsibility for agricultural production in accordance with requirements of the collective economy for a long time without change, and permitting diversity in the forms of a system of responsibility for a long time without change.

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## PROVINCIAL REQUIREMENTS ON SUGARCANE SET

Fuzhou FUJIAN RIBAO in Chinese 7 Dec 81 p 1

[Article by Provincial Sugar Refining Industry Company: "Proposal That Attention Be Given Several Problems During New Crushing Season Made at Cane Sugar Production Conference Convened by Provincial Government"]

[Text] The sugar mills in Fujian Province began crushing sugarcane in early December. The provincial government convened a cane sugar production conference at which it took up the new situations and new problems that had appeared in cane sugar production following institution of a system of responsibility for agriculture. It put forward several problems that should be focused on for solution during the new crushing season so as to assure fulfillment of production quotas for 420,000 tons of sugar during the 1981-1982 crushing season.

This year the province will harvest 706,000 mu of sugarcane, a 58,000 mu increase over the last crushing season. It is estimated that this area will supply more than 3.5 million tons of sugarcane for crushing. Sugar mill production capacity has also been further increased. Not only have 31 large and small sugar mills increased their crushing capabilities by more than 2,000 tons through tapping potential, making improvements, and restructuring, but four newly built 500 ton sugar mills have formally gone into production, and one 2,000 ton enlarged sugar mill has begun experimental production. Sugar production capacity in the province has increased by 60.8 percent over the last previous crushing season, an increase that is virtually commensurate with increase in sugarcane. In order to make full use of Fujian Province's advantages in producing cane sugar, comrades in charge from all the main sugar producing prefectures, municipalities and counties who attended this conference, all the principal departments involved, and leaders of the large and medium size sugar mills conscientiously discussed new problems that have occurred in cane sugar production since the institution of systems of responsibility for agricultural production, and made several requests about production in the new crushing season as follows:

1. Further strengthening of leadership engaged in cane sugar production. All major producing prefectures, municipalities, and counties are to be the specific responsibility of a deputy prefect, deputy mayor, or deputy county head. All units concerned in all prefects are to closely coordinate, divide responsibility for labor, and discover and solve problems in a timely fashion.



2. The work of cutting, hauling, purchasing, and looking after sugarcane is to be done conscientiously. Sugar mills are to buttress planning in their work and, on the principle of cutting the cane that ripens first, work out plans in common with communes and brigades for cutting and hauling, as well as sign economic contracts. Communes and brigades are to sell sugarcane to the state on time, of proper quality, and in proper quantity. Hauling of sugarcane will be done mostly by communes and brigades, sugar mills and hauling units playing an ancillary role in hauling, and the hauling potential of the people being used to the full. Hauling personnel are to submit themselves to regulation to do the hauling in accordance with plans. "Backdoor deals," and extortion are to be strictly punished.

3. Implementation of policies to win the confidence of the people. The grain, fertilizer, sugar, or money to be paid for procurement of sugarcane will be figured up by sugar mills and the authorities concerned for settlement with production teams. Production teams are to make settlement with commune members on the basis of the system of responsibility of fixing output quotas on a household basis, so that commune member income from increased output of sugarcane will be greater.

4. Strengthening of sugarcane management to improve economic benefits. Raw sugarcane is not to be permitted to enter market trade, and theft or looting of sugarcane is to be severely punished. No small sugar mills are to be set up in cane growing areas. That portion of sugarcane that large sugar mills are "unable to digest" may be crushed by small sugar mills, provided the Provincial Planning Commission approves. However, sugar output must be taxed according to regulations and procured by the state. Any sugar mills set up without authorization shall be outlawed.

5. Sugar mills are to improve administration and management and all around quality controls for further improvement in output and quality of sugar, improving the utilization rate per 10,000 tons of sugarcane by improving quality, lowering waste, and reducing costs.

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## BRIEFS

**TOTAL GRAIN OUTPUT**--Fujian Province achieved an all-round bumper harvest in 1981 with total grain output surpassing a record high of 16 billion jin. The total output of longan, oranges and tangerines, flue-cured tobacco, tea, rapeseed and peanuts also reached a record high. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 10]

**JINJIANG COUNTY LAND SALES**--In 1981 grain output of Jinjiang County, Fujian, dropped by more than 10 million jin because large tracts of cultivated land had been used for building houses. In the townships of Qingyang, Shishi and Anhai, some people have even sold the plots, which are contracted to them for farming purpose, at the cost of 1,300 yuan per 0.1 mu. [OW161041 Fuzhou FUJIAN RIBAO in Chinese 4 Mar 82 p 2 OW]

**JIANYANG PREFECTURE GRAIN OUTPUT**--In 1981 Fujian's Jianyang Prefecture turned out 2.586 billion jin of grain, topping 1980 by 136 million jin, and procured more than 910 million jin of grain, topping 1980 by 121 million jin. [Fuzhou FUJIAN RIBAO in Chinese 4 Mar 82 p 2 OW]

CSO: 4007/284

FOCAL POINTS FOR AGRICULTURAL SCIENCE, TECHNOLOGY GIVEN

Shijiazhuang HEBEI RIBAO in Chinese 7 Dec 81 p 2

[Article by Li Feng [2621 6912], Deputy Provincial Governor Hebei Province: "Let Systems of Responsibility for Agricultural Production and Scientific and Technological Work Proceed in Tandem"]

[Excerpts] The urgency and importance of current attention to agricultural science and technology work must be further recognized. Since the Third Plenary Session of the 11th Party Central Committee, accompanying readjustment of the national economy has been an increasing recognition on the part of leadership cadres at all levels, and of the broad masses of the people, of the important position of science and technology work in development of the national economy. Accompanying implementation and perfection of various forms of a system of economic responsibility in the farflung rural villages has been emergence of the study of science, love of science, and use of science in a "craze for science and technology." In some places supply cannot keep up with demand for popular reading materials on agricultural science, in a situation of "difficulties in buying books." As a result of institution of systems of responsibility for production, linkage to production is like linkage to one's heart, and only through applied science and technology can yields be increased for increased earnings. Investigation by units concerned shows that peasants who have systematically mastered agricultural science and technology number only about 30 percent of the total. Forty percent of the peasants act as though they understand without really understanding, and another 30 percent, particularly a large number of youths between 20 and 30 years of age, have no grasp of farm work techniques. In the past they relied on their brawn to earn workpoints, but with the advent of contracting of production, they feel urgent need to study technology. Not only do peasants need to study technology, but rural cadres also urgently need to study technology, because blind guidance will not work, and executive orders won't have any effect either. The Central Committee has further clarified programs for scientific and technical development, suggesting that science and technology must be combined with economics and society, and that science and technology must serve the national economy to solve the problem of orientation of scientific and technological work. We need to diligently solve the problem of all levels of leadership not understanding, or not relying upon science, or shouting empty phrases, combining scientific and technological work with systems of responsibility so that they work in tandem to effect great changes in agricultural production.

Science and technology has to be converted directly into productivity as quickly as possible. Next year, we will take in hand the following seven scientific and technical tasks.

1. Continuation of agricultural resource surveys and agricultural zoning work. This is a basic task for the formulation of policies that relies on science.

2. Diligent action to develop research and spread the results of science and technology. Major projects in development of research are new varieties and new strains of wheat and demonstration experiments in use of water and fertilizer; new strains of cotton and superior varieties of cotton, and demonstration experiments in use of water, fertilizer, and prevention and control of diseases and insect pests; new strains and new varieties of millet, and demonstration experiments in scientific use of water and fertilizer; new strains and superior varieties of corn and demonstration experiments in scientific use of water, fertilizer, and prevention and control of diseases and insect pests; demonstration experiments on bumper crop techniques for potatoes; demonstration experiments using new strains and superior varieties of oil-bearing crops (such as peanuts, flax, and sunflowers); demonstration experiments on introduction of superior varieties of pasture grasses and on use of green manure to improve soil; demonstration experiments on balanced increases in yields of fruit trees and on early fruiting culturing techniques for young orchards; demonstration experiments on new varieties and new techniques in the growing of melons; and demonstration experiments on maintenance of purity in breeding of rabbits, and research on lean meat hogs. In addition, the Provincial Bureau of Agriculture also proposed an equitable crop pattern for wheat varieties; culturing techniques for cotton varieties Lumian No 1, Jimian No 2 (Zhengchang No 1), Jimian No 3 (disease resistant variety); culturing of Qingdaolao summer millet; culturing techniques for strengthening wheat seedlings before the onset of winter; companion cropping of summer corn to preserve a full stand of stalks; disease resistant spring millet and lodging resistant summer millet; resistance to drought in mountain and hill regions to permit spring sowing for a full stand of plants; intercropping of grain and pulses; full stands of sturdy cotton seedlings that develop early; culturing techniques using plastic sheeting to cover the ground; increasing fertilizer for and increasing the number of clumps of peanuts transplanted plus reducing the number of buds [so those remaining grow larger], and giving early care; application of results of soil surveys; growing of green manure to nurture soil fertility; comprehensive prevention and control of cotton bollworms; and use of hybrid dominance in vegetables, providing such scientific and technical projects for promotion to all places for their consideration. Other individual bureaus under jurisdiction of the province also put forward their own projects to be emphasized for promotion, and gave much attention to their implementation. In addition, on the basis of their own situation in adapting general methods to local situations, all prefectures and counties made arrangements for promotion of their own projects.

3. A good job in the building of modern agricultural bases, with the launching at Luancheng and Nanpi of agricultural modernization experiments to explore the way.

4. Intensification of seed work. Concentration of forces to do a good job of experimental demonstration work with superior varieties of seeds and seeds that show promise of being superior varieties that are suited to growing in Hebei Province. Intensification of experimental research work on varieties that tolerate drought, tolerate alkalinity and tolerate poor soil, and improvement in organization and coordination in order to change as quickly as possible the backward condition of Hebei Province's seed work.

5. Taking in hand development for use of the Taihang mountain region, starting with high yields of fresh fruits, and the raising of small domestic poultry and small livestock animals to make use of the resources in the 24 counties of the Taihang mountain region.

6. Use and improvement of the Heilonggang region. This entails promotion, on the one hand, of the experiences of the Zhangzhuang Brigade in Quzhou County, and of Wuma Battalion in Nanpi County in clearing up alkalinity, and making the most of advantages of local farming traditions on the other, adapting general methods to local situations, using strengths and avoiding weaknesses to make full use of the soil resources of Heilonggang region.

7. Solution to technical problems in development of economic diversification, organizing scientific research, production, and marketing into a continuous process. In the raising of hogs, chickens, rabbits, and martens, superior varieties should be introduced and scientifically raised, epidemic diseases prevented and controlled.

Strengthening and Reorganizing of Agricultural Research and of Promotional Organizations. Institutes above the prefectural level engaged in research on farming, forestry, irrigation, meteorology, and fisheries should be strengthened, and a good job done with the several institutes of the Academy of Agricultural Sciences. Major current problems should be focused on and major research projects in farming, forestry, animal husbandry, sideline occupations, and fisheries should be drawn up on the basis of conditions in the province, and efforts coordinated to serve agricultural production. In doing research, in addition to research on individual projects, importance should be given macrocosmic, comprehensive research. Agricultural research units are to abide by major decisions on agricultural problems. Promotional organizations below the county level require improvement. All counties should set up promotion stations with subordinate specialized teams. Every commune should arrange to have one qualified technician, who is excused from production work, whose responsibility it is to give attention to promotion work. In addition an organization of peasant technicians, both those partially excused from production work and those not excused from production work, should be formed. When technical positions are being evaluated, promotion personnel are not to write slanted articles, but are to look at technical accomplishments, technical standards, and professional capabilities of personnel. Those having conspicuous accomplishments are to be given rewards. Commune farms, superior variety farms, and production brigades and production team demonstration farms are to continue operation.



A Good Job of the Popularization of Science. Commune science popularization societies and production brigade science popularization propaganda stations are to be set up and perfected. Rural agricultural technicians, veterinary personnel, teachers as well as those possessing specialized skills, and the broad masses of cadres who support science popularization work should be organized.

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# FOUR COUNTRIES ACHIEVE BUMPER HARVESTS DESPITE DISASTERS

## Qing County Scores Successes

Shijiazhuang HEBEI RIBAO in Chinese 8 Dec 81 p 1

[Text] Qing County has actively promoted various forms of a system of responsibility linking compensation to output, has adapted general methods to local situations in readjustment of crop patterns, had developed economic diversification and commune and brigade enterprises, and has triumphed over serious drought and wind disasters for all around increases in output and earnings from farming, forestry, animal husbandry, sideline occupations, and fisheries.

This year, despite a 700,000 mu reduction in its grainfield area, the county's grain output increased over last year, output totaling 180 million jin. The county contributed 21 million jin to the state, an 87.3 percent increase over last year. It also realized "10 breakthroughs" as follows: First was in total autumn grain output, output this year being seven percent greater than the all-time high year since founding of the People's Republic. Second was output value from economic diversification, which increased 14.5 percent over the all-time highest level. Third was output value from commune and brigade enterprises. Forecasts call for achievement of 76.56 million yuan, a 440,000 yuan increase over the all-time high level. Fourth was commodity output of agricultural byproducts, which was 18 percent higher than the all-time high level for the same period. Fifth was a total output value of agriculture this year amounting to 94.7 million yuan, a 12.6 percent increase over the all-time high. Sixth was average per capita distribution of earnings, which was 110 yuan, a 16.5 percent increase over the all-time high. Seventh was total amount of commune member savings, which amounted to 8,474,000 yuan between January and October, a 22.5 percent increase over the all-time high for the same period. Eighth was total retail sales of goods, which amounted to 52.45 million yuan for the period January to October, an 11 percent increase over the all-time high for the same period. Ninth was the building of more than 30,000 new houses by commune members, a 23 percent increase over the all-time high. Tenth was that as of the end of October large livestock animals in inventory in the county numbered 29,207 head, an increase of 4,197 head over the all-time high for the same period for an increase of 16.7 percent.

Today in the farflung rural villages of Qing County, the peasants have money and they have grain; an increasing number have bought furniture, added new equipment, taken wives, or built new houses. In the cities and countryside of the county the economy is flourishing and markets are brisk, presenting a delightful picture of happy people in a fat year.

#### Lincheng County's Sesame, Pulse Production

Shijiazhuang HEBEI RIBAO in Chinese 8 Dec 81 p 1

[Text] This year Lincheng County contracted out to commune members, who submitted bids, its poor hill lands that lay uncultivated, and land in out of the way places for the growing of sesame and pulse crops, deriving tremendous increases in yields therefrom. Total output of sesame in the county may reach 1.4 million jin, and total output of pulses may reach more than 3 million jin, these outputs being close to the totals for the past 10 years in each case. Sales to the state of 650,000 jin of sesame have been made. This is 35 percent more than the total sold the state during the past 10 years. Pulse sales amounted to more than 440,000 jin, more than double the total amount sold to the state during the past 10 years. Throughout the county a large number of households that harvested more than 1,000 jin of sesame and pulses has appeared.

#### Ding County Grain Output Records

Shijiazhuang HEBEI RIBAO in Chinese 8 Dec 81 p 1

[Text] Despite serious calamities this year as a result of drought, wind, diseases, and insect pests, Ding County's grain yields per unit of area amounted to 685 jin, a 52 jin increase over last year. Total output was 587 million jin, an increase over last year of 39 million jin. Both were all-time highs.

In order to do a good job of agricultural production this year, all communes and brigades in Ding County took firmly in hand the perfection and upgrading of systems of responsibility for agricultural production. Now 94.7 percent of production teams in the county have instituted various forms of a system of responsibility for production, which has aroused the eagerness for production of the broad masses of cadres and people. On this basis, they have also given attention to scientific farming. Leadership cadres, technicians and technical mainstays throughout the county who have received various kinds of training total more than 370,000. In addition, systems of personal responsibility for technicians have been established to arouse their enthusiasm to give guidance to peasants in farming to assure bumper harvests in agriculture.

# Bumper Production in Weichang

Shijiazhuang HEBEI RIBAO in Chinese 8 Dec 81 p 1

[Text] Weichang County's practical action in developing livestock production and promoting systems of responsibility in which compensation is linked to output has aroused the enthusiasm of the peasants. This year the county's grain output may reach 226 million jin, a 43 million jin or 22 percent increase over last year. The livestock industry created all-time high records. Large livestock animals number 120,700 head, an increase over last year of 6,700 head for a six percent increase. Sheep and goats number 385,000 head, an increase over last year of 57,300 head for a 21.1 percent increase. Throughout the county 22,059 slaughter sheep have been purchased by the state this year for a 91.8 percent overfulfillment of quotas.

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CSO: 4007/163

# HENGSHUI PREFECTURE SUCCESES IN LINKING EARNINGS TO OUTPUT HAILED

## Per Capita Income Increase in Gucheng

Shijiazhuang HEBEI RIBAO in Chinese 5 Dec 81 p 1

[Text] The 1,124 people in 297 households in the six production teams of Wuhu Production Brigade, Gucheng County farm 2,664 mu of land. Prior to the Third Plenary Session [of the 11th Party Central Committee], this production brigade was known throughout the country as "poor in three ways." Its grain yields were just a little more than 300 jin per mu; its cotton yields were just a little more than 30 jin per mu; and per capita income averaged just a little more than 110 yuan. This year, after instituting a system of responsibility of specialized contracting, calculation of compensation being linked to output, despite severe drought, grain yields reached 1,474 jin per mu; cotton yields reached 190 jin per mu, and per capita income averaged 957 yuan. In one leap it became the advanced unit in the prefecture.

How can such a great change take place within such a short period of time in a poor and backward village? The key lies in the CCP Committee and the Management Committee of this brigade having diligently acted in the spirit of the Third and Sixth Plenary Sessions [of the 11th Party Central Committee] to integrate realities with leftist criticism and criticism of the leftist errors of the principle persons in charge of the former Provincial CCP Committee, to emancipate mentality, and to act in terms of realities in the brigade to put into effect a system of responsibility of specialized contracting whereby compensation was calculated in terms of output. At the same time, they readjusted the internal structure of agriculture to expand the cotton growing area, and vigorously developed both economic diversification and commune member household sideline occupations. Acting on the basis of the activities in which the entire village was engaged and the skills of its workforce, as well as on the desires of its people, they set up individual specialized farming teams, specialized cotton growing teams, specialized sideline occupation teams, specialized machine maintenance teams, and specialized forestry teams. They also instituted a work contract system of responsibility for grain grinding mills, shops selling on commission, and medical treatment stations, signing individual contracts with each of them, which were reconciled at year's end. In the case of cotton production contracted by commune members, an output of 80 jin per mu was paid, with a bonus of 0.70 for every jin in excess of this quota, all amounts greater than



than 120 jin per mu going entirely to the growers. In the case of sideline occupation teams with 95 people in them, annual earnings were set at 16,000 yuan. Once this quota was reached, each person had 10 workpoints recorded daily. At year's end, 50 percent of earnings in excess of quota and up to 20,000 yuan were retained as bonuses for sideline occupation personnel. Earnings of more than 20,000 yuan were entirely distributed as bonuses to sideline occupation personnel. In the case of shops selling on commission and medical treatment stations, fixed numbers of employees and fixed annual earnings were set, the employees bearing sole responsibility for all profits and losses.

After Wuhu Production Brigade instituted a system of responsibility of specialized contracting, calculation of compensation being linked to output, full advantage was taken of workforce and material resources. All around bumper crops of grain, cotton, and oil-bearing crops were harvested in a year of severe drought; accumulations were further increased; and reproduction expanded.

#### Zaoqiang County's Greater Output, Earnings

Shijiazhuang HEBEI RIBAO in Chinese 5 Dec 81 p 1

[Text] Puzhuang Production Brigade in Tanglin Commune, Zaoqiang County has six production teams consisting of 313 households. This is a notoriously poor village where, in most years, labor is valued at 0.10 to 0.20 yuan, or sometimes as little as 0.07 to 0.08 yuan. No bonuses have been paid here in 12 years. The village has 60 bachelors over the age of 25, and annually 60 members of its workforce leave the village for elsewhere, so 1,500 mu of its cultivated land has been left uncultivated. This year, following institution of a system of responsibility, the enthusiasm for production of commune members reached unprecedented heights. Total output of autumn grain alone increased 2.4 fold over total output for all of last year; total output of cotton increased 5.1 fold over last year; and per capita earnings increased by an average 6.8 fold over last year.

This brigade had implemented a work contracting system of "three unifieds" and "five fixeds." The "three unifieds" were unified planting plans, unified watering of land, unified eradication of insect pests. The "five fixeds" were fixed plots of land, care and use of fixed farm animals and farm tools, fixed subsidy payments to cadres and people not engaged in production, fixed care [of the indigent] and fixed withholdings. In order that this system of responsibility would be steadily improved upon, the brigade CCP branch and management committee made sure to constantly study new situations and promptly solve new problems. They took practical action to eradicate commune member apprehensions. At first commune members feared the system of responsibility might change, so they dared not put an investment into the fields for which they were responsible. Party branch secretary Li Jun'ge [2621 0193 2706] thereupon took the lead in making an investment, fertilizing the fields for which he was responsible with 160 jin of urea and 50 jin of ammonium carbonate to spur commune members on. In three production teams, plots that had been contracted out were scattered, making it inconvenient for commune

members to farm them. Brigade cadres helped these three teams readjust these plots, changing the system from contracting for the total amount of fields to contracting for individual parcels. After contracting work had been done, a large amount of surplus workforce remained. In order to find opportunities for this surplus workforce, 500 mu of land that had been left uncultivated were contracted to commune members for farming, the cotton growing area being expanded by 200 mu, and the oil-bearing crop area by 300 mu. Help was also given commune members in development of economic diversification, the brigade seeking opportunities, issuing certifications, and handling procedures. This year 65 households are firing bricks and tiles; three households are keeping bees; six households are doing carpentry work; four households are operating turpentine making shops; five households are operating beancurd making shops, five households are making vermicelli; three households are processing rice noodles, and three households are working rubber. In addition, two specialized construction teams with a total of 30 people, have been set up. In this way 127 households in the brigade, a workforce of 180 (amounting to 42 percent of the total workforce) has been put to work at economic diversification or household sideline occupations, and an unprecedentedly flourishing scene has taken place in agricultural sideline occupations. Though farm animals and farm tools much increased following contracting of work responsibility, both were insufficient to the needs of commune members' farming. In order to solve this problem, brigade cadres went around to each household to make a full registration. They organized each household for mutual cooperation, and they organized use of machines for farming so that every household will be able to plant wheat on time this fall.

#### High Grain Output in Hengshui County

Shijiazhuang HEBEI RIBAO in Chinese 5 Dec 81 p 1

[Text] Xili Production Brigade in Heyan Commune, Hengshui County has two production teams consisting of 63 households. This year they have instituted unified management with a system of responsibility whereby fixed output quotas are assigned individual able-bodied workers, winning extraordinary economic results, and the appearance of a large number of "outstanding households" with high outputs, high contributions to the state, and high earnings. The 12 households in the production brigade with annual outputs of 10,000 jin each account for 20 percent of all households in the village, five of them having produced 10,000 jin of grain from the fall season crop alone. Twenty households sold more than 5,000 jin of surplus grain to the state in the fall (the brigade tendered the summer crop). These 20 households accounted for 31.7 percent of the total number of households in the village. The 23 households with distributions from the collective averaging an annual more than 300 yuan per capita amount to 37 percent of the total number of households in the village.

In its practice of unified administration with a system of responsibility whereby fixed output quotas were assigned individual able-bodied workers, this brigade formulated collective adherence to six unifications, namely unified planting plans, unified machine farming, unified watering, unified investment, unified assignment of workforces, and unified distributions. It practiced

"three contracts and one reward," namely contracting for labor, contracting for output, and contracting investment, with commune members getting full rewards and being responsible for all losses incurred. This system was guaranteed not to change for a period of 3 years. Once this form of a system of responsibility was set, commune member eagerness for production immediately zoomed. After care of wheat began this spring, the brigade was supposed to invest a certain amount to buy chemical fertilizer for commune members, but the brigade was out of money at the time. So 38 commune member families took the initiative in advancing the brigade money, which was used to buy 8,600 jin of chemical fertilizer. The brigade planned to repair 2,300 meters of field ditches to stop them from leaking, and commune members went right to work. Now 1,300 meters have already been prepared. The production brigade CCP branch focused on new problems that had arisen following implementation of the system of responsibility, and buttressed ideological and political work. For five commune members whose tending of the fields for which they were responsible was good, citations of merit were promptly issued, commune members throughout the village were called upon to emulate them, and their experiences were spread throughout the production brigade. For hardship households comprised of the old, the weak, the orphaned, the widowed, and those that had lost their able-bodied members, the brigade arranged to send special people to grind flour and provide such farm work as their strength would permit to make sure that their livelihood would be no lower than the median. In addition, following practice of the system of responsibility, some households took the initiative to link up, exchange labor and help each other, the brigade lending support and encouragement so that mutual assistance became the order of the day throughout the village. In this way, this brigade's unified administration with a system of responsibility whereby fixed output quotas were assigned individual able-bodied workers brought huge forces into play, and output of grain and oil-bearing crops exceeded the all-time highs.

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BRIEFS

OIL-BEARING CROP OUTPUT--Hebei Province created a historical level of oil-bearing crop production in 1981, reaching a yearly yield of 900 million jin, 100 million jin more than the past record. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 13]

CSO: 4007/264

## AGRICULTURAL READJUSTMENT, MECHANIZATION, RESULTANT LABOR SURPLUS DISCUSSED

Beijing NONGCUN GONGZUO TONGXUN [RURAL WORK NEWSLETTER] in Chinese No 12,  
5 Dec 81 pp 15-16

[Article by Luo Jingbo [5012 0513 2672], Research Office, CCP Central Committee Secretariat: "A Look at Readjustment of the Agriculture Structure in Terms of Heilongjiang"]

[Excerpts] Results Remarkable From Readjustment of Structure of Agriculture

Heilongjiang's main farming areas are located on the alluvial plains of the Sunghua and Nen rivers, and on the marshy plain at the confluence of the three rivers [possibly the Mutan Jiang, the Tangwang He, and the Tongken He]. This area is large, the soil fertile, water abundant, and hours of sunshine long. They constitute the greatest naturally richly endowed commodity grain bases. However, during those years under a program of "taking grain as the key link," when only the production of grain was deemed important and when even the world renowned and nationally highly favored "northeast soybeans" were forced out because of their "low yields," and when attention was given only to "high yield crops" such as corn soybeans had to be companion cropped with corn, having no choice but to "seek survival in any crack." This situation did not permit grain output in Heilongjiang to achieve the development it should have achieved. It was not until 1977 that grain output for the province amounted to somewhat more than 22 billion jin. Commodity grain provided that year amounted to only somewhat more than 6 billion jin.

Following the Third Plenary Session of the 11th Party Central Committee, the Heilongjiang Provincial CCP Committee acted in a practical way to diligently implement the Central Committee's program of giving attention to planting in accordance with local conditions, and the development of economic diversification. First of all, it designated grain and bean growing zones and miscellaneous grain growing zones according to natural conditions and traditional farming practices, and implemented scientific regionalization in farming. For example, it designated the Nenjiang administrative region, with its short frost-free period, a production zone for wheat and beans, and designated the Suihua administrative region's numerous counties as zones for growing of paddy rice, to convert sandy land to the growing of peanuts, and to continue the growing of corn on high downlands. The masses liked this, which made easy the preservation of millet, the sown area of which has also



greatly increased during the past 2 years. As a result of readjustment of the crop structure, despite serious natural calamities, Heilongjiang's grain output in 1979 and 1980 equaled that of the bumper year of 1978, amounting to more than 29 billion jin. Commodity grain output also rose from 9.6 billion jin in 1978 to 11 billion jin in 1980. This year, except for a serious decline in output of state farms in the east as a result of serious flooding, a good harvest is expected.

Concurrent with readjustment of the internal structure of grain crops has been appropriate expansion in Heilongjiang in recent years of the growing area of sugarbeets, flax, sunflowers, and flue-cured tobacco, which have been fairly rapidly increased to more than 10 million mu, an increase from a 4.7 percent ratio of total area sown in 1977 to 7.9 percent. This year the area sown to economic crops has been further expanded, increasing by 15.6 percent as compared with 1980.

The Provincial CCP Committee has also further liberalized policies for some impoverished counties and communes to encourage them to proper further development of some economic crops.

#### Mutual Advancement of Agricultural Mechanization and Economic Diversification

The lessons of the past have been summarized for concentrated investment, during the past 2 or 3 years, in mechanization and complete equipping of Heilong's agriculture. Mechanization has been done first in prosperous areas and in areas where results can be quickly obtained, thus using a set of methods that stress practical results and economic benefits. For example, during the past 3 years, the state has provided 14 million yuan in loans for agricultural mechanization to Keshan County, 8 million yuan of which can be recovered as early as this year. Loans given in any given year can be entirely recovered following the autumn harvest in the same year.

Following agricultural mechanization, usually a very large surplus of workforces results. For example, in the rural villages of Keshan County, 85 percent of the work force formerly was engaged in farm work; today it is only 50 percent. In some miscellaneous grain growing areas, in particular, where the average number of people required to farm the land is somewhat less, the proportion of surplus workforce is even greater. What is to be done with this resultant surplus workforce? This has been a very great consideration in the promotion of agricultural mechanization. Today, however, a way out has been found under guidance of a program for development of economic diversification. First is putting together all kinds of specialized teams for the accumulation of manure, breeding, vegetables, fruits, and field water conservancy, to do intensive farming, and to make advances in depth and in breadth in agricultural production. Second is development of forestry, animal husbandry, sideline occupations, and fisheries to broaden avenues of production. Third is development of commune member family sideline occupations, making use of private plots, land for the growing of animal fodder, and land for the growing of fuel crops, and developing family growing and family hatching industries. Fourth is operation of commune and production brigade industries. Fifth is development of construction material and con-

struction industries for the building of new farm villages and small cities and towns. Sixth is operation of restaurants, hotels, photographic, tailoring, and repair facilities.

Agricultural mechanization and economic diversification advance each other and complement each other. Prior to mechanization, numerous communes and brigades relied on economic diversification to increase income and accumulate funds for mechanization. Following mechanization, they again depended on economic diversification to provide opportunities for surplus workforces. Development of mechanization has smashed the narrow outlook of handicraft labor, permitting a division of labor and a division of trades for production, and also giving impetus to development of specialization in economic diversification.

The all around development of agricultural production has raised numerous new requirements in all quarters that await solution:

1. Increased attention to making the most of the power of science and technology.
2. Urgent need for enhancement of processing of agricultural byproducts, their transportation and sale.
3. Full use of Heilongjiang's role as the largest commodity grain base in the country. In order to promote national economic development and gradually reduce grain imports, Heilongjiang has to be able to gradually supply the country more commodity grain, particularly to provide the nutrient-rich soybeans that the people of the entire country need. In order to solve this problem, contradictions existing between the central government and localities, and between the state and the people, on grain problems have to be better solved to further arouse their enthusiasm for production of grain and beans.

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CSO: 4007/168

## BUMPER HARVEST DESPITE 100 DAYS DROUGHT REPORTED

Wuhan HUBEI RIBAO in Chinese 5 Dec 81 p 1

[Article by Wang Xinchao [3769 2450 2600] and Han Chaoxiong [7281 2600 7160]: "State Support Wins Bumper Harvests, and Bumper Harvest Do Not Forget Support to State. Despite 100 Days of Severe Drought This Year, Jingmen County Harvests 1.1 Billion Jin of Grain. Bumper Crop Peasant Households Tender State 440 Million Jin of Grain For Overfulfillment of Requisition Purchase Quotas"]

[Text] Peasants in Jingmen County, who won bumper harvests through reliance on state support to triumph over serious drought, have eagerly sold their surplus grain to the state. The country has already sold 440 million jin of grain to the state for overfulfillment of its requisition procurement grain quotas for the year.

Jingmen Country grows 1.2 million mu of paddy rice, making it one of the province's principal commodity grain bases. Between April and August this year, the county had not one soaking rain and suffered a serious 100 day drought. Thanks to arousal of the enthusiasm of the masses as a result of the system of responsibility that linked compensation to output, the irrigation benefits derived from state constructed water conservancy projects, and the vigorous support rendered by industry, and by finance and trade units, the drought was overcome and a bumper harvest won, the county's grain output totaling 1.1 billion jin. According to statistics, this year the county put to work in combat against drought more than 6,200 pieces of power machinery with more than 150,000 horsepower. All of the more than 10 large and small electrically powered irrigation stations on Huangdang Lake and Chang Lake, which had been built with capital invested by the state, were used, consuming more than 24 million kilowatt hours of electricity. During the height of combat against drought, Zhanghe Reservoir daily pumped more than 40 cubic meters of water per second, providing more than 300 million cubic meters of water to assure a bumper harvest for the irrigation zone's major rice producing communes of Yandun, Tuanlin, Wuli, Shili, Shiqiao, and Zengji. Industrial, and finance and trade units promptly provided rural villages with large amounts of chemical fertilizer, pesticides and diesel fuel. Agricultural scientific and technical units organized more than 8,000 technicians to go down to the grassroots to provide guidance to peasants in scientific farming. The peasants said. With this year's severe drought, but for the party's good policies, the

country's timely support, and Zhanghe Reservoir's assured irrigation, a great disaster could have taken place. Now it is rice resulting from policies that we are eating, and socialist prosperity that we are enjoying.

Following the bumper grain harvest, everyone eagerly sold their excess grain to the state. Peasants from Wuli Commune in the Zhanghe irrigation zone, remembering the source of their prosperity, sold to the state 5.5 million jin of grain over and above fulfillment of their requisition procurement quotas. Every one of the 181 production brigades that last year received government assistance when stricken with an especially severe flooding and waterlogging disaster, this year harvested a bumper crop. One hundred sixty of these production brigades sold to the state a total of 140 million jin of surplus grain. As of mid-November, the number of households in the county that had sold the state from 10,000 to 30,000 jin of grain numbered 8,030.

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CSO: 4007/173

## DEGRADATION OF LOCAL ECOLOGY BLAMED FOR FARMING PROBLEMS

Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCES] in Chinese No 11, Nov 81 p 16-18

[Article by Wang Zhongqin [3769 0022 2953], Huanggang Prefecture Science Commission: "Discussion of Farmland Construction Problems in Huanggang Prefecture"]

[Excerpt] Huanggang Prefecture has 7,377,000 people and only 6,961,000 mu of cultivated land, the average amount of cultivated land per capita being less than two-thirds the national average. With such a small amount of farmland, if agriculture is to improve further work in building farmlands is clearly particularly important. We have won remarkable achievements in the building of farmland and water conservancy since Liberation; however, in terms of total needs, our building of farmlands is not yet over the hump. As of 1980, effectively irrigated farmland area in the prefecture totaled 5,777,000 mu, or 83 percent of the total area. The area from which harvests could be taken despite waterlogging or drought totaled 4,096,000 mu or 58.8 percent of the total area. The area producing consistently high yields was 2,584,000 mu or 37.1 percent of the total. This is to say that under normal circumstances, one-sixth of the farmland would be difficult to irrigate; in years of normal harvests, most fields would not produce high yields; and in years of slight disaster, almost one-half of farmlands would be threatened with drought or waterlogging. In 1979 total grain output broke 6 billion jin (not including Echeng, the same applying elsewhere in this article). This represented a twofold increase over 1949. However, in the course of 30 years, consecutive yearly increases occurred only in the three year period from 1955 to 1957, while consecutive yearly decreases were limited to the 4 year period 1966 to 1969. Cotton output fluctuated for 8 years following 1965 creating a total output record only in 1974, while yields per unit of area fluctuated for 13 years, a breakthrough taking place only in 1979. Reasons for inconsistent yields are numerous, but in terms of the internal agricultural situation, one of the major reasons was that the building of farmlands was not up to snuff.

First of all the soil presented many obstacles to high crop yields. Take Xishui County where a second soil survey has been completed. The country has 12 percent of wetlands and 48.5 percent of drylands, an overly large amount of them having sandy soil. About 30 percent are cold, waterlogged, muddy



fields, low-lying lake or river fields, and intermediate blue mud fields. Soil nutrients are imbalanced, and the soil is seriously deficient in phosphate and potash, 72 percent of cultivated land lacking phosphate, and 46 percent lacking potash. Soils are slightly acidic, those with a pH of less than 5.5 accounting for 38.5 percent of the total. If the situation in Xishui County, which has a fairly good basis for agricultural production, is like this, the situation in other counties may be imagined.

The natural ecological system in which the farmlands are located have also been seriously damaged. Data from authorities concerned show that, at the time of the general survey in 1975, land in the prefecture used for forestry had decreased by 3.36 million mu since the period immediately following Liberation, a decline of 23.1 percent. Despite a forested area of 8,653,000 mu, timber reserves averaged only 1.2 cubic meters per mu or only one fourth the national average. Furthermore, the three manys in the composition of forests, namely many young and mid-age forests (accounting for 97.1 percent), many coniferous forests (pine and fir accounting for 94.9 percent), many natural forests (accounting for 59.5 percent), and the three fews in the structure of forests, namely few branches, few grassroots level forests, and few areas with a vegetation cover, greatly reduced the role of forests. Take the quantity of erosion in forests. Data from inside China and from abroad indicate that soil erosion generally averages about 2 tons per square kilometer of forest, but measurements taken by the Shiqiaopu water and soil conservation station in the prefecture show forest soil erosion to be more than 78 tons. In 1980 the eroded area of the prefecture amounted to 8,256.7 square kilometers or 38.6 percent of the prefecture's total area, and 2,466.2 square kilometers of this total or 30 percent of the area needing control, has yet to be brought under control. Calculations based on the soil erosion modulus for various kinds of topography as measured by the Shiqiaopu water and soil conservation station, show that from the more than 2 million mu of barren mountains, cultivated slopes and low standard terraced fields, annual erosion amounts to 4,234,000 tons of soil. The serious soil erosion causes many riverbeds to rise by an average more than 3 centimeters annually, and silt entering reservoirs throughout the prefecture averages 6,341,000 cubic meters annually, which amounts to the scrapping of one medium size reservoir every year. As a result of the reclamation of lakelands to create fields, by 1980 lake water surfaces for the entire region amounted to only 500,800 mu or only 41.4 percent the area immediately following Liberation. As a result the agricultural climate has tended to deteriorate. Analysis of 30 consecutive years of meteorological data by the Wuhan and Huanggang meteorology stations shows an average decline in precipitation of 179.5 millimeters during the 1960's as compared with the 1950's, and a decline of 94.2 millimeters in the 1950's as compared with the 1960's. The longest consecutive number of days without rain in a year averaged an increase of somewhat more than 2 days per decade. The longest consecutive number of days of rainfall and amount of rainfall, in a situation of decreased rainfall, increased slightly in the 1970's as compared with the 1950's. This shows a tendency toward concentration of periods of precipitation during a decline in volume of rainfall, which can easily result in drought or waterlogging disasters.



JIANGSU

BRIEFS

NANTONG PREFECTURE FIELD MANAGEMENT--Jiangsu's Nantong Prefecture is stepping up management of its more than 4.5 million mu of wheat, barley and naked barley. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 13 Mar 82 OW]

CSO: 4007/284

JIANGXI

BRIEFS

ANFU COUNTY CATTLE--Jiangxi's Anfu County now has more than 50,000 cattle in stock. The number of cattle raised by peasant families has exceeded 13,000 head. [OW091403 Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 3 Feb 82 OW]

NANFENG COUNTY GRAIN PURCHASE--Nanchang, 11 Mar (XINHUA)--Some 140 million jin of grains were purchased in Nanfeng County last year, exceeding the purchase quota by approximately 100 million jin. Total output of oranges in 1981 reached 17 million jin, an increase of 12 million jin over 1976. Individual income reached an average of 224 yuan last year, an increase of 65 yuan over 1980. [Beijing XINHUA Domestic Service in Chinese 0207 GMT 11 Mar 82 OW]

CSO: 4007/284

BRIEFS

TOTAL GRAIN OUTPUT--Jilin Province in 1981 reached an overall agricultural bumper harvest with total grain output of 18.34 billion jin and total oil-bearing crop output of 650 million jin. Both figures are a record, 7 percent and 23 percent over the bumper harvest of 1980 respectively. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 11]

CSO: 4007/264

BRIEFS

SOWN AREA INCREASED--The sown area in Liaoning Province using the new technique of plastic mulch cultivation increased 65,000 mu over that of 1980. The yield per unit area for rice, cotton and peanuts was more than double that of the areas using regular cultivation techniques. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 9]

CSO: 4007/264

BRIEFS

GROSS INDUSTRIAL, AGRICULTURAL VALUE--The 1981 gross value of industrial and agricultural output reached 8.4 billion yuan for the entire region, a 4.5 percent increase of the 1980 figure. The average gross value of industrial and agricultural output per capita has thereby restored to the highest historical level. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 15]

TOTAL GRAIN OUTPUT--Under severe drought conditions, the 1981 total grain output in Nei Monggol has increased 2 billion jin, a record. The number of livestock in 1981 increased 3.6 percent over 1980. The number of livestock removed from inventory and the commodity rate were also up in 1981. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 15]

SPRING LAMBS--Ulan Qab League in Nei Monggol Autonomous Region has engaged in lamb delivery work. The league has delivered 252,000 spring lambs. The survival rate is 94 percent. [SK072207 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 6 Feb 82]

CSO: 4007/269

BRIEFS

LIVESTOCK OUTPUT--The number of livestock of every breed in Qinghai Province has increased by 3.39 million head over 1980, a 15.6 percent rate of increase. The number of cattle and lambs removed from inventory was 3.01 million head, a 1.6 million head increase over the previous year. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 15]

CSO: 4007/264



## SHAANXI REALIZES SELF-SUFFICIENCY IN EDIBLE OIL IN 1981

Beijing GUANGMING RIBAO in Chinese 11 Jan 82 p 1

[Article: "Rely On Scientific Planting to Change the Situation of Consuming Reissued Edible Oil for 14 Years, Shaanxi Province Realized Self Sufficiency With Surplus of Edible Oil Last Year"]

[Text] Report by reporter Liu Binggi [0491 3521 3823]: Shaanxi Province which has consumed reissued edible oil provided by the state for 14 years has realized self sufficiency in edible oil in 1981. In 1980, the total yield of oil bearing crops throughout the province has reached 219.4 million jin, creating the highest record in history. The amount produced in 1981 registered an increase of 50 percent over 1980, breaking the 300 million jin mark.

A very important reason for Shaanxi Province's rapid development of its production of oil bearing crops was the popularization of advanced techniques in a big way and the implementation of scientific planting besides the party's policies which mobilized the enthusiasm of the commune members and besides the readjustment of crop distribution by suiting measures to local circumstances. During the past 2 years, the agricultural departments at each level and the scientific research units in agriculture in Shaanxi Province have done a lot of work to improve rape varieties. They have cultivated and popularized "Zao feng No 2", "Zao feng No 3", "Shaan you 110", "S7211" and such a series of superior varieties which suit this province's natural characteristics. Visible results have been achieved. The concerned agricultural, scientific and technical departments of the province have also organized scientific and technical personnel of scientific research units in agriculture at the three levels of the province, prefecture and county to conduct experiments at certain localities, and they have separately developed techniques of cultivation of rape for different regions, such as the Hanzhong Basin, Gunzhong paddy fields and dry plateaus of the region north of the Wei River. Over 1,800 specialized personnel and over 100,000 farmer technicians were trained. They have popularized advanced techniques on a large scale, and they have more thoroughly changed the situation of rough cultivation and technical backwardness in the cultivation and production of rape.

9296

CSO: 4007/187

## BRIEFS

**TOTAL GRAIN OUTPUT**--Despite the rare historical flooding, the 1981 total grain output in Shaanxi Province still reached about 15 billion jin, close to the 1980 level. The gross value of agricultural output increased about 3 percent over the 1980 figure. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 14]

**OIL-BEARING CROP OUTPUT**--Shaanxi Province's total output of oil-bearing crops reached about 3.3 million dan, a 50 percent increase over 1980, realizing self-sufficiency in oil-bearing crop output. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 14]

**MILK GOATS INCREASE**--The 1981 milk goats in the province increased to 740,000 head. The powdered goat milk output reached 6,000 dun, a national first. [Excerpt] [Beijing BAN YUE TAN in Chinese No 3, 1982 p 14]

CSO: 4007/264

BRIEFS

COTTON OUTPUT--The 1981 total cotton output in Shandong Province reached more than 13 million dan, surpassing the combined total output of 1976-1979. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 9]

DIVERSIFIED ECONOMY--On the basis of 22 percent increase in 1979, the gross income from diversified economy in Shandong Province in 1980 registered another increase of 19 percent, reaching 12.5 billion yuan. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 9]

CSO: 4007/264

## JINZHONG PREFECTURE POPULARIZES AGROTECHNIQUES TO DEVELOP PRODUCTION

Taiyuan SHANXI RIBAO in Chinese 18 Dec 81 p 1

[Article by Pan Yaodong [3382 2565 2639] and Liang Ruojie [2733 5387 3381]: "Popularize Techniques Among All Families, Rely on Science to Increase Yield, Increase Income and Become Rich, the Jinzhong Prefecture Popularizes the Application of Agricultural Science and Techniques With Visible Results"]

[Text] As the year 1982 is about to arrive, welcomed news is heard from the Jinzhong Prefecture in the popularization of the application of agricultural science and techniques with visible results: In 1981, the science committee of the administrative office selected and implemented 36 agricultural science techniques, and because they suited the natural conditions of the locality, and because concrete measures were well matched, most served a visible function in promoting production, increasing income and creating wealth. They have enabled scientific techniques to develop great power in agricultural production.

In recent years, 22 scientific research achievements in agriculture developed by the Jinzhong Prefecture received national and provincial awards. To enable these advanced techniques to be popularly utilized and to become practical productive forces, the prefecture committee and the administrative office established a "new techniques popularization leading group" in September of last year, and the committee also established a plan to popularize and apply new techniques aimed mainly at "less investment, quick results, large gain". These techniques mostly suit the locality's natural characteristics. The soil is infertile. Drought easily occurs. The frostless period is short. Spring is cold and the temperatures are low. The 69 brigades in the six cotton planting counties in the prefecture used thin sheets to cover over 1,140 mu of cotton fields, and each mu produced an increase of 59.3 jin over the cotton fields cultivated by ordinary methods. The science committee of Taigu County launched the method of "letting scientific techniques go ahead and go to the villages". Thus, commune members of 522 families planting watermelons also learned to use sheets to cover the ground and increased income by over 420,000 yuan. The 20,000 mu of millet in Jiexiu County increased their yield by over 30 percent because of the popular use of the "jinzhuang method of cultivating high yields of millet" despite the drought that occurred in spring and summer this year. Yuci and Heshun counties expanded the area of test planting of summer wheat. After

harvest, the per mu yield of winter wheat averaged an increase of 135 percent. The "xia mai No 1" popularized over 268 mu in the hilly regions of Yuci County yielded nearly twice as much as the other varieties planted in similar soil.

While popularizing the application of new agricultural techniques, the scientifics, the scientific techniques department at each level in Jinzhong Prefecture also paid a lot of attention to scientific guidance in diversification. Gaocun Brigade in Qi County used frozen semen to improve the yellow buffalo. In one year's time, it increased income by 21,900 yuan, a per capita average of 42.10 yuan. Bodi Brigade of Pingding County built fish ponds with a water surface area of over 200 mu and utilized surplus heat from the nearby power plant to cultivate fish scientifically. Now, it has propagated over 80,000 African crucian carp. In addition, the agricultural science departments at the three levels of the prefecture, the county and the commune also popularized knowledge about the techniques of raising silkworms, deer, and martens scientifically in many ways among the broad number of commune members through training in special subjects, by teaching them in villages and by broadcasting lectures. They have opened new roads for the farmers to become rich quickly.

9296

CSO: 4007/187

## BRIEFS

AGRICULTURAL GROSS VALUE--Even in encountering a disastrous flood situation, Sichuan Province was able to increase its 1981 gross value of agricultural output to a record of 3 percent over the 1980 figure. Grain production increased 600 million jin, rapeseed more than 260 million jin. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 12]

LIVESTOCK FIGURES--The number of hogs removed from inventory in 1981 in Sichuan Province is 32.5 million head and sold to the state 19 million head. At the end of 1981, the number remaining in inventory were 51.65 million head. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 12]

CSO: 4007/264



## BRIEFS

ANIMAL GROWTH RATE--Despite severe snow disaster in Xizang Autonomous Region, 1981 total animal growth rate in Xizang reached about 15 percent. The output value of major animal husbandry products increased 13.8 percent over the 1980 figure. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 10]

TOTAL GRAIN OUTPUT--The 1981 total grain output in Xizang reached 950 million jin, the fourth highest-yielding year since Liberation. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 10]

PEASANT, HERDER AVERAGE INCOME--The 1981 average peasants' and herders' income per capita for the entire region was a historical record of 200 yuan (including income from family sideline enterprises), a net increase of more than 20 yuan over the 1980 figure. [Excerpt] [Beijing BAN YUE TAN in Chinese No 2, 1982 p 10]

CSO: 4007/264

## WIDER USE OF GRAINS OTHER THAN WHEAT, RICE URGED

Hangzhou ZHEJIANG RIBAO in Chinese 22 Dec 81 p 1

[Article: "Need for Use of Superior Varieties and Superior Methods in Developing Minor Edible Grains. Delegates and Experts Attending Provincial Minor Grains Evaluation Conference Suggest All Jurisdictions Give Serious Attention to Minor Grain Output"]

[Text] Great prospects exist for development of minor grains [grains other than wheat and rice] in Zhejiang Province, the crux lying in use of superior varieties and superior methods. This was the unanimous view of delegates and experts attending the Provincial Minor Grains Evaluation Conference convened by the Provincial Seed Company and recently held in Shangyu County.

Avenues are broad for Zhejiang Province's development of minor grains. It is possible to expand the growing of these grains to places such as seacoasts and yellow soil hills where major grain crops cannot be grown, and they can occupy a major position in open fields to play the role they should play in readjustment of the farming system. In regions in which output from a wheat - rice - rice system of farming is not high, the system may be changed to wheat - beans - rice, or wheat - rice - beans, or else a single rice crop system can be changed to a two crop system of beans and rice. In addition, minor grain crops may be intercropped or companion cropped for three dimensional farming. Otherwise odd corners of fields or small scraps of unused land may be used to grow them, sticking them in wherever possible. There are many varieties of grain crops that may be grown; they have a wide range of uses; labor costs are small; economic value is high; and they are a good method for combining nature and use of soil as well as a good avenue for increasing output and earnings. Today less than half the area of the 1950's is devoted to the growing of minor grain crops. Everyone acknowledges that this state of affairs must be changed with all possible speed, and that cadres and commune members must come to understand the importance of developing minor grains if avenues are to be opened so that minor grains can get a foothold. Last year Wenzhou Prefecture companion cropped 70,000 mu of soybeans, 20,000 mu of mung beans, and more than 1,000 mu of sesame on its sweet potato lands alone for increased harvests of more than 7 million jin of soybeans, more than 1.2 million jin of mung beans, and more than 10,000 jin of sesame.

The experts agreed that it is necessary for the development of minor grain crops to direct attention both to numerous varieties and to high yields.

Today output of minor grains in Zhejiang Province is low, the main reason being a lack of superior varieties and good methods of growing them. The same old varieties and the same old techniques are used in most fields. The Lanqi County Institute of Agricultural Sciences used superior varieties and superior methods in combination to grow autumn soybeans, harvesting yields of 481 jin per mu, more than double the yield from the growing of soybeans generally. Everyone acknowledged that through experience in production all jurisdictions in Zhejiang Province have bred group of superior varieties of minor grain crops suited for promotion locally. In recent years quite a few superior varieties have been introduced from elsewhere. One such is superior soybean variety, Aijiaozao, which ripens early, produces high yields, has fine quality beans, tolerates fertilizer, tolerates cold, and tolerates delayed planting. Another is superior peanut variety, Yueyou 551, which produces consistently high yields, has a quite good flavor, and produces yields that range from 30 to 50 percent higher than local varieties. Wuyuekui variety of sunflowers is another superior variety. It has short stems and ripens early, has a large disc that produces high yields, tolerates fertilizer, poor soil, salinity and alkalinity, and is suited for growing over a wide area. Active promotion of these superior varieties can bring about a new situation in output of minor grains in Zhejiang Province.

9432

CSO: 4007/160

## BRIEFS

FARM MACHINE INDUSTRY PLANS MET EARLY--The farm machinery industry in Zhejiang Province has overfulfilled quotas for the entire year 1 month ahead of schedule. This year farm machinery industry departments responsible organized a group of key enterprises for a thoroughgoing investigation in rural villages to find out peasant needs and to understand what new situations had arisen in joint use of farm machinery by households, rentals of farm machinery by communes and brigades, and individual purchases of farm machinery following the advent of specialized contracting and linking calculation of remuneration to output in agriculture. Overall requirements for farm machines are, first, that they be small, second, that they be good, and third, that they do not cost much money. Acting on the basis of these new requirements, each plant provided for the production of a group of small farm machines, increased output of hand tractors, tea processing machines, small power machines, threshing machines, and machines that can be pushed by hand. Once they reached rural markets, they became goods in great demand. Acting on the basis of export demand, each plant increased output of new varieties for export, the province's farm machinery exports increasing from six or seven kinds to more than 20 kinds, and the volume of business increasing twofold over last year. [Text] [Hangzhou ZHEJIANG RIBAO in Chinese 21 Dec 81 p 2] 9432

CSO: 4007/160

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9717

CSO: 4011/28



## 'SENGONG KEJI TONGXUN' TABLE OF CONTENTS, NO 12, 1981

Beijing SENGONG KEJI TONGXUN [FOREST INDUSTRY SCIENCE AND TECHNOLOGY] in  
Chinese No 12, 15 Dec 81 inside front cover

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Agriculture

AUTHOR: PAN Juncheng [3382 0689 2087/0015]  
LU Zejian [7120 0463 1017]  
QIAN Yanqiao [6929 8746 2881]

ORG: All of Zhenjiang Institute of Agricultural Machinery

TITLE: "Analyses of Paddy-field Soil Parameters of Southern Provinces and Districts"

SOURCE: Beijing NONGYE JIXIE [TRANSACTIONS OF THE CHINESE SOCIETY OF FARM MACHINERY] in Chinese No 4, 1981 pp 101-107

TEXT OF ENGLISH ABSTRACT: In this article, analyses of paddy-field soil parameters are made, including coefficient of adhesion, coefficient of cohesion, depth of soft soil, and shearing strength, measured in Jiangsu, Zhejiang, Fujian, Jiangxi, Guangdong, Guangxi, Yunnan, Hunan and Hubei.

9717  
CSO: 4011/30

AUTHOR: WANG Wanhe [3769 8001 0735]

ORG: Yushu County Science Committee

TITLE: "New Method of Raising Pigs for Fast Weight Gain"

JOURNAL: Changchun NONGJUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese  
No 1, 1 Jan 82 p 5

ABSTRACT: ZHU Aiaowen [2612 2556 2429] a member of Huaijia Commune of Yushu County raised 2 sows in early 1981 and obtained 23 piglets. He sold 13 piglets and 1 sow in Apr; in May and Oct he again sold 15 pigs to the state. In the year, he earned an income from raising pigs a total of 3,468 yuan and still had 14 piglets in his city. The secret of his success is summarily reported as follows: (1) Giving the pigs raw green feed instead of cooked feed he saves more than 14 yuan per pig in feed and 30 percent of the labor and the raw feed is better for the pigs. (2) Instead of one kind of feed, he mixes green, coarse, and fine feed in a proper ratio to satisfy the nutritional needs of the pigs. (3) The dry feed is mixed with water to form a gluey paste which pigs are very fond of. (4) Due to the fact that the pasty feed is very digestible, he feeds the pigs 5 times instead of 3 times a day. (5) His piglets do not lose weight after being weaned. They are cared for very specially by giving no less than 0.5-1 jin a day of processed feed in the daily diet. By summer time, a large quantity of green feed is added until the pig grows to weigh 140-150 jin before adjusting the feed by adding more processed feed to fatten it for about 2 months. By then, the pig weighs more than 200 jin and is ready to be sold as a commercial hog.

AUTHOR: ZHOU Guangfu [0719 1684 6534]

ORG: None

TITLE: "Raise a Large Number of Small Donkeys"

JOURNAL: Changchun NONGJUN KEXUE SHIYAN [RURAL SCIENTIFIC EXPERIMENTS] in Chinese  
No 1, 1 Jan 82 p 16

ABSTRACT: This paper discusses the virtues of a species of small Chinese donkeys, called baolu. They are not very big but they can pull about 250 kg of weight and are capable of working the field, transporting the harvest, or pumping the water. They are very gentle and willing to perform hard work; they tolerate coarse feed and are disease resistant. They are skillful in maneuvering the small trails. Their meat has a high protein content and is easily digestible by men. Their hide is a raw material for a traditional Chinese drug and can also be made into a high grade leather. All these excellent characteristics also cause them to be good beasts of burden, particularly useful in the military. The cost of raising them is low. In Tongshan County, for example, more than 17,000 heads were raised in one year. In Heilongjiang, there were 7373 heads of animals sold on the market and 5021 of these were donkeys of this species. The price of other animals is reported to be 10 percent lower this year, but that of the small donkey has risen 30 percent. The need for these donkeys is definitely related to the development of China's rural economy and their rise in price signals the improved condition of rural production.

100  
4011/27

AUTHOR: ZHUANG Diquan [8369 6611 2164]  
TANG Yonghai [3282 3057 3189]  
HU Qingsheng [5170 1987 0581]

ORG: All of Bast Crop Research Institute, Chinese Academy of Agricultural Sciences

TITLE: "Preliminary Research on Effect of Inducing Male Sterility in Kenaf by Chemicals"

ABSTRACT: Changsha ZHONGGUO MAZUO [FIBER CROPS IN CHINA] in Chinese No 3, Jul 81 pp 21-26, 20, 9

ABSTRACT: Hybrid kenaf [anbary]  $F_1$  demonstrates obvious heterosis but at present there is yet no effective seed preparation method. According to foreign reports, treatment with 0.01-0.05 percent Embutox can produce partial male sterility. In 1979-80, the authors conducted an experiment to test the effects of dichloropro-Panoic acid and dalapon. Effects of these 2 chemicals are compared with those of other chemicals, such as CK, FW-450, AW-0, KMS-1, MH, etc. Effects of the chemicals on the growth of the kenaf plants and the development of their reproductive organs are observed. The male sterility effect is found to be closely related to the density of the chemical used, and the amount, timing, and number of spraying. The effect is also easily influenced by environmental factors. Analysis of experimental data also indicates that the amount of chemical accumulated in the plant is directly related to the detasseling action. As the effective content of the chemi-

[continuation of ZHONGGUO MAZUO No 3, 1981 pp 21-26, 20, 9]

cal increases, the effect of male sterility is higher, and the fruiting rate of artificial pollination is also reduced, i.e. there is less number of seeds in each plant. Is this a problem of too much chemical content in the plant body to cause an effect on the pistil itself? Or is it an effect on the fertilization process? Further study is needed to answer these questions.

AUTHOR: NI Lu [0242 4389]

ORG: Songhua Jiang Research Institute of Agricultural Sciences, Heilongjiang Provincial Academy of Agriculture

TITLE: "Proper Sowing Time Makes Higher Yield and Finer Quality of Flax Fiber"

SOURCE: Changsha ZHONGGUO MAZUO [FIBER CROPS IN CHINA] in Chinese No 3, Jul 81 pp 47-48

ABSTRACT: The growth and development period of flax [*Linum usitatissimum*] is short and it is a crop requiring a great deal of water. When there is no condition for irrigation, the effective measure for improving the yield and the quality of flax is to grasp the proper time for planting. A research on the proper sowing time for flax began in 1963 and in 1965 the sowing time was proposed to be moved from late Apr to early May, resulting in 33.9 percent yield increase in 1966. In 1978-79, a 2-year experiment again proved that the yield and quality of flax are the best when the sowing time is from late Apr to early May. This is mainly because when it is planted during that period of time, the flax can best utilize the favorable condition of nature during its growth and development period. When it is planted earlier, the fiber quality is good, but the drought may easily stunt the plant to produce a low yield. When it is planted too late, the high temperature and frequent rain are favorable for the growth of the stalk but not favorable for formation and accumulation of fiber to result in a low yield of poor quality fiber.

6248

CSO: 4011/21

AUTHOR: LING Leng [0407 1515]

RG: None

TITLE: "Forests - A Green Shield Against Floods"

SOURCE: Beijing NONGCUN KEXUE [RURAL SCIENCE] in Chinese No 1, 1982 pp 2-3

ABSTRACT: In the 2 months of Jul and Aug 81, tremendous rain storms fell onto the 145,000 mu of superior cropland, causing unprecedented floods in the 135 counties of the Sichuan Basin. Some say this is a natural calamity but generally speaking although changes of atmospheric circulation are the basic condition of rain storms the depreciation of forest coverage remains the direct cause of the overwhelming damage. This paper explains the fact that forests can store moisture, change the distribution ratio of rainfall, and regulate the speed of water flow; therefore, they control and weaken the power of floods. For example, in Cangqi County, the forest cover is more than 30 percent. After 241 mm of rain, the ground surface stream coefficient was 42.6 percent. In Nanchong and Wusheng Counties, there was only 141 mm of rain, but the stream coefficient was 68.1 percent because the forest cover was only 2-4 percent. This disastrous flood of Sichuan should serve as a lesson to remind the people the benefits of forests.

AUTHOR: CAO Guangcai [2580 1684 2088]

RG: None

TITLE: "The Method of Controlling and Promoting According to the Leaf-age Indices of wheat"

SOURCE: Beijing NONGCUN KEXUE [RURAL SCIENCE] in Chinese No 1, 1982 pp 8-9

ABSTRACT: Many studies have been conducted and many papers written on the subject of obtaining high and stable yield of wheat, while reducing the cost, the labor, etc. but there was still no concrete standard to follow. The leaf-age technique provides a scientific method of management to standardize water and fertilizer applications of the wheat fields. A drawing is given to depict 3 leaf-ages signaling the time to apply fertilizer and water. Since 1980, the technique has been extended in Beijing, Hebei, Shanxi, Shandong, Tianjin, etc. in 1.15 million mu of wheat fields. In Aizhong County of Hebei, for example, for the 57,107 mu of wheat, after adoption of the technique, the average yield increase per mu has been 42.7 jin, at a cost reduction of .0215 yuan per jin. The total cost reduction was 56,810 yuan and the increased yield was valued at 422,776 yuan. The technique is described in some detail.



AUTHOR: Li Jingshu [2621 0079 3219]

NO: none

TITLE: "Talking About Humus Fertilizer"

SOURCE: Beijing NONGCUN KEXUE [RURAL SCIENCE] in Chinese No 1, 1982 p 17

ABSTRACT: In the past, Chinese farmers often used such black colored fertilizer as silt, lignite, peat moss, etc. All these are humus fertilizers containing humic acid. Now many humic acid containing materials are used to process with nitrogen, phosphorus, potassium, or trace elements to produce mixed fertilizer. If humic acid is mixed with ground phosphate rock, there is very little improvement of phosphorus utilization, only about 0.166 percent in the entire growth and development period of rice, but such humic acid phosphorus fertilizer is effective for rape and buckwheat. Humic acid can also improve the absorption of potassium fertilizer by crops and has a chelating action to produce chelates with some hard-to-dissolve trace elements to cause them to be easily absorbed by plants.

1242

NO: 4011/26

AUTHOR: SUN Diangqing [1327 3013 3237]  
PAN Kun [3382 0981]

ORG: None

TITLE: "Soil Treatment With Phoxim for Controlling Northeast Large Black Chafers"

SOURCE: Harbin HEILONGJIANG LINYE [HEILONGJIANG FORESTRY] in Chinese No 2, 5 Feb 82 pp 10-12

ABSTRACT: Large black chafers [scarabaeid beetles] are not only the major pests of agriculture. They also inflict major damage to the production of saplings in the Northeast. In 1980, of the 70 mu of saplings of various pines cultivated by the Dongfeng Commune, these beetles destroyed more than 20 mu, at a loss of 5 million young trees worth nearly 50 thousand yuan. In 1981, the authors conducted an experiment in 6 groups of plots. In 4 groups, 0.5, 1, 2, and 3 jin/mu of phoxim (in 50 percent emulsion, a product of Tianjin Pesticide Plant) is mixed with water and evenly sprayed in trenches of the seedbed before adding soil to the trenches to restore the leveled surface. In the 5th group, 1.5 jin/mu of phoxim is used. The 6th group forms the control. Results of the experiment indicate that for controlling such underground pests as the chafer, 1-1.5 jin/mu of phoxim diluted in water and applied to the 3-5 cm topsoil is very effective. This soil treatment should be done 3 to 5 days before planting. The beetle-killing effect of phoxim lasts about 3 months and a few larvae will survive to pupate at about 20 cm below the level of the phoxim application; therefore, for effective control, it is best to apply 2 years consecutively.

6248

CSO: 4011/18

AUTHOR: HU Zhong [5170 1813]  
LIANG Hanxing [2733 3352 5281]  
PENG Liping [1756 7787 5493]

ORG: All of Kunming Institute of Botany, Chinese Academy of Sciences

TITLE: "Photosynthetic Characteristics of a Yellow-green Rice Mutant"

SOURCE: Kunming YUNNAN ZHIWU YANJIU [ACTA BOTANICA YUNNANICA] in Chinese No 4,  
Nov 81 pp 449-456

TEXT OF ENGLISH ABSTRACT: This paper concerns the photosynthetic characteristics of a yellow-green nucleus mutant of rice which was obtained by us in anther culture. The content of total chlorophyll, xanthophyll and  $\beta$ -carotene in the mutant leaves is about 31 percent, 40 percent and 75 percent of that in normal leaves respectively; the chl a/chl b ratio of the mutant is much higher than that of normal leaves. The analysis of SDS-solubilized extracts of the chloroplast lamellae shows that the major light-harvesting chl a/b protein complex of the mutant is extremely deficient, and its chl a/chl b ratio is more than 3. In the chloroplasts of mutant leaves, there are very few grana stacking, and more starch grains can be seen when leaves are exposed to sunlight. The rate of  $\text{CO}_2$  assimilation of mutant leaves exposed to 20,000 lux of sunlight is 75 percent of that of normal leaves on the basis of leaf area, and is 185 percent based on chlorophyll. The chloroplasts of the mutant may also show a much higher rate of ferricyanide Hill reaction based on chlorophyll.

[Continuation of YUNNAN ZHIWU YANJIU No 4, Nov 81 pp 449-456]

The results show that the grana stacking of chloroplast is closely related to the quantity of the light-harvesting chl a/b protein, and is not essential for the photosynthesis process.

9717

CSO: 4011/45

AUTHOR: GUO Zhongchen [6753 0112 3819]

ORG: Institute of Botany, Chinese Academy of Sciences

TITLE: "The Preliminary Studies on Culture of Unfertilized Rice Ovary *In Vitro*"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 1, Jan 82  
pp 33-38

TEXT OF ENGLISH ABSTRACT: The present paper reports the results of the culture of unfertilized ovaries of rice *in vitro*. The inducing medium was  $N_6$  supplemented with 2 mg/l 2,4-D, 500 mg/l casien hydrolysate and sucrose was 4 percent. The differentiated medium was  $N_6$  supplemented with 2 mg/l Kinetin, 500 mg/l casein hydrolysate and the concentration of sucrose was 3 percent. The four cultivars and two crossed combinations were used as the experimental materials. The experiments showed the differentiation of the callus which occurred among various cultivars. The induced frequency in the crossed combinations was higher than that in the cultivars. Now 12 green plants and 3 albino plantlets have been obtained. The chromosomes of 11 green plantlets have been examined. Among them, six plantlets were haploid ( $n = 12$ ) and five plantlets were diploid. The embryoids were located in the micropylar end. Some of them possessed the suspensor, similar to zygote embryos. The callus was found to be from different origins. One of them originated from haploid tissue derived from the nucleus in the embryo sac. Another originated from the diploid tissue in the integument or ovary wall. The origin of the callus from the unfertilized ovary was discussed.

AUTHOR: LI Xijing [2621 6932 3193]

YUAN Xiaohua [5913 2556 5478]

WU Xiangyu [0702 4161 6877]

ORG: All of the Department of Biology, Beijing University

TITLE: "Comparative Studies of Some Kinetic Properties of Glyceraldehyde 3-Phosphate Dehydrogenase and Fructose-bisphosphatase in Chloroplasts from Wheat and Rice"

SOURCE: Beijing ZHIWU XUEBAO [ACTA BOTANICA SINICA] in Chinese No 1, Jan 82  
pp 39-45

TEXT OF ENGLISH ABSTRACT: Enzymatic properties of the chloroplast GAP dehydrogenase and FBPase from the wheat or rice leaves of the main stems during the grain filling period have been investigated. According to the effect of the substrate or coenzymes concentration, it is shown that the GAP dehydrogenases in freshly ruptured wheat or rice chloroplast show higher activities than FBPase, especially the activity of the wheat chloroplast GAP dehydrogenase which is over 10 times greater than that of FBPase. However, the activities of the above two enzymes in the rice chloroplast show only a little difference, with the activity of the rice FBPase being higher than that of the wheat.

The maximum initial velocities ( $V_{max}$ ) of the two enzymes in the above two chloroplasts are determined and are apparently different from each other.

[Continuation of ZHIWU XUEBAO No 1, Jan 82 pp 39-45]

At about 0.2 mM NAD(P)H concentration the activity of GAP dehydrogenase in the rice chloroplast is saturated. But, with the same concentration, the wheat GAP dehydrogenase is still not saturated. It is noteworthy that the ratio of the activities of the two chloroplast GAP dehydrogenases for NADPH and NADH approaches equality as the coenzyme concentration is increased.

Possible physiological significance of the kinetic properties of the above two enzymes during the wheat and rice grain filling period is discussed.

9717

CSO: 4011/44

AUTHOR: None

ORG: Joint Survey and Report Network, National Brown Planthopper Research Cooperative Group

TITLE: "Studies on the Overwintering Limit of Brown Planthopper in China"

SOURCE: Beijing KUNCHONG ZHISHI [ENTOMOLOGICAL KNOWLEDGE] in Chinese No 1, Jan 82 pp 1-5

ABSTRACT: As a part of the study on the migration principle of brown planthopper feeding on rice (*Nilaparvata lugens* Stål), the group have carried out several years of investigation and experimentation to answer such questions as whether the planthopper is capable of overwintering within the territory of China, what is the ecological condition of overwintering, what is the form of the overwintering insect, etc. Due to the fact that paddy rice is the only food of the brown planthopper and it is unable to withstand very low temperature, the work has been carried out mainly in Guangdong, Guangxi, Fujian, Hunan, Jiangxi, Yunnan, and Guizhou provinces. Analyses of data of 1975-79 appear to indicate that the overwintering limit is closely related to the mean temperature of the month of January; therefore, the northern limit fluctuates between 21° and 25° N. lat. The survival rate and the temperature are in a linear relationship, being 0.40 (40 percent) if the mean temperature of January is 11°C.

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ORG: CHEN of Research Institute of Entomology, Zhongshan University; WEN of Sihui County Bureau of Agriculture, Guangdong Province

TITLE: "Preliminary Report on the Late Rice Seedlings Infested by *Stollia ventralis* (Westwood)"

SOURCE: Beijing KUNCHONG ZHISHI [ENTOMOLOGICAL KNOWLEDGE] in Chinese No 1, Jan 82 pp 5-7

ABSTRACT: Black shieldbugs (*Stollia ventralis*) (Westwood) are common pests in China damaging not only rice but also gaoliang, corn, millet, beans, and cotton. In the last 2 years, it had become the major pest of late rice seedlings in Dasha Commune, of Sihui County. That commune had had the practice of applying large quantities of pesticides during the late stage of early rice and the seedling stage of late rice, which is the peak of propagation of the shieldbugs; therefore, this pest had not been very noticeable. Now that the comprehensive control policy has been launched and less pesticide is used, this pest grows into a gigantic population. After the early rice harvest, most adults move to nearby late rice seedbeds. Following a study of its morphology and life history, the paper recommends a mixture of malathion and DDT for its control. Protection of its natural enemies, including frogs, spiders, ants, etc. is also a meaningful measure of its control, of course.

6248

CSO: 4011/17



AUTHOR: None

ORG: 5HZ-3.2 Grain Drying Machine Joint Research Group

TITLE: "The 5HZ-3.2 Grain Drying Machine"

SOURCE: Beijing NONGYE JIXIE [FARM MACHINERY] in Chinese No 1, 1982 p 9

ABSTRACT: Properly dried seeds are the key to high yield. In the past, seeds are dried in the sun, depending upon constant turning. The drying process takes a long time and considerable labor, while the seeds are not evenly dried and easily mix with foreign matter to reduce their quality. For this reason, the Chinese Academy of Agricultural Sciences, the Shanghai Municipal Institute of Agricultural Machinery, the Sichuan Provincial Institute of Agricultural Machinery, the Sichuan Yongchuan General Machinery Plant, and the Santai County Agricultural Machinery Repair Plant cooperated in the research and manufacture of the 5HZ-3.2 seed dryer. The new product was certified by the ministry in Nov 81. It is suitable for seed companies, communes, and brigades to dry rice or wheat seeds. It may also be used to dry commercial grain. The structure of the machine is described, including a brief drawing of the machine. The cost of electric power is about 0.50 yuan/ton. Compared with similar domestic products, its properties are judged to be advanced.

6248

CSO: 4011/29

AUTHOR: LI Shiye [2621 1395 8768]  
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KONG Wangen [1313 8001 2704]

ORG: All of the Institute of Soil and Fertilizer, Zhejiang Academy of Agricultural Sciences

TITLE: "Studies on the Characteristics of Nitrogen Supply in Paddy Soils.  
II. Effect of Fertilization on the Soil Nitrogen Supply and Grain Yield of Double Cropping Rice"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 82  
pp 13-21

TEXT OF ENGLISH ABSTRACT: Field trials and micro-plot experiments using  $^{15}\text{N}$ -labeled ammonium sulfate were conducted on a silty clay paddy soil developed on alluvial deposits of the Hangzhou Bay.

The experiments with the same design for early rice and late rice were laid out separately in the same field for comparative investigation. The results obtained are summarized as follows:

(1) The A-value of the soil and the amount of soil N assimilated by the late rice were considerably higher than those of the early rice, which may be mainly due to the difference in temperature regime between the two growing seasons. The amount of N taken up by the late rice was 3.66 - 4.18 percent of the total N content in

[Continuation of TURANG XUEBAO No 1, Feb 82 pp 13-21]

the plowed layer, and was only 2.69 - 3.21 percent for the early rice. Correspondingly, the grain yield of the late rice in the control plot was much higher than that of the early rice.

(2) Soil N was the predominant source of the total N accumulated in either early rice or late rice. In the treatments of organic manure and chemical fertilizer, the percentage of soil-derived N in the total assimilated N of the double-cropping rice ranged from 48.6 - 81.4 percent, while the fertilizer-N and manure-N were 14.3 - 40.3 percent and 11.1 - 19.6 percent respectively.

(3) The percentage of soil-derived N in the total N accumulation in different organs tended to decrease in the order of roots, shoots and panicles, and the reverse was true for the fertilizer-N.

(4) Under the same method of application of nitrogen fertilizer, there was no significant difference in N recovery from  $^{15}\text{N}$ -labeled ammonium sulfate by early rice or late rice, their recovery percentages being 28.8 - 35.5 percent and 28.3 - 31.2 percent respectively. However, the efficiency of the fertilizer on increasing the grain yield of early rice was much lower than that of late rice. This may be due to the different soil N supplying capacity in different growing seasons. Around 65 percent of the assimilated fertilizer-N was distributed in panicles, which might be related to the higher efficiency of nitrogen fertilizer applied at the panicle formation stage.

(5) Under the same method and rate of application of pig manure, the N recovery by late rice was higher than that by early rice. The highest grain yield of early rice

[Continuation of TURANG XUEBAO No 1, Feb 82 pp 13-21]

and late rice was obtained by the treatment of the application of pig manure in combination with ammonium sulfate, which may imply the consistency of nitrogen supplying status in the soil of this treatment with the demand of rice.

AUTHOR: DENG Shiqin [6772 2514 3830]  
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ORG: Both of the Institute of Soil Science, Chinese Academy of Sciences, Nanjing

TITLE: "Studies on Soil Particles in China. I. Some Physical and Chemical Properties of Soil Particles in Different Size Fractions of the 'Whitish Horizon' in Bleached Paddy Soil of Tai Lake Basin"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 82 pp 22-33

TEXT OF ENGLISH ABSTRACT: The soil particles of the "whitish horizon" in bleached paddy soil were separated into seven fractions (1 - 0.25, 0.25 - 0.05, 0.05 - 0.01, 0.01 - 0.005, 0.005 - 0.002, 0.002 - 0.001 and < 0.001 mm). Chemical analysis showed that the sand fraction (1 - 0.05 mm) in which there are "iron-manganese sands" contained less  $\text{SiO}_2$  and more  $\text{Fe}_2\text{O}_3$  than the silt fraction (0.05 - 0.002 mm). The sand fraction was characterized by its very high magnetic susceptibility. Its hygroscopic coefficient was also higher than that of the silt fraction by 3.5 - 4.0 percent. These features of the soil are different from those of the upland soils. This implies that in addition to  $\text{SiO}_2$ , other minerals may also be present in the sand fraction.

[Continuation of TURANG XUEBAO No 1, Feb 82 pp 22-33]

Experimental results confirmed that it was only the clay fraction ( $<0.002$  mm) which could exhibit plasticity and swelling properties. The plastic index and swelling capacity of the fine clay ( $<0.001$  mm) were higher than those of the coarse clay ( $0.002 - 0.001$  mm) by 2-3 times. The compressive strength of the silt fraction was very low ( $0.014 - 0.147$  Kg/cm<sup>2</sup>), but its bulk density in water was greater ( $1.37 - 1.42$  g/cm<sup>3</sup>). Under waterlogged conditions, the silt fraction settled down as a compacted layer. The settling and compacting of the "whitish horizon" might be mainly affected by the content of coarse silt ( $0.05 - 0.01$  mm) and the ratio between coarse silt and fine clay.

It is considered that the critical limits for a soil to exhibit settling and compacting properties are: coarse silt content  $\geq 40$  percent, ratio between coarse silt and fine clay content  $\geq 2$ , and the organic matter content  $\leq 2$  percent.

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et al.

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TITLE: "Formation and Reclamation of Tile-like Crust-solonetz"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 82  
pp 34-42

TEXT OF ENGLISH ABSTRACT: The present paper deals with the formation and reclamation of tile-like crust-solonetz in the semi-arid region of China.

The main characteristics of tile-like solonetz are given as follows: 1. There are no plants except alkali-tolerant plants on this soil. 2. On the surface of the soil there are tile-like crusts of 1-2 cm in depth; and on the crust back there are spongy structures. 3. The total salt content of the soil is not so high in the whole profile, that of the surface soil is less than 0.5 percent, and that of the subsoil is 0.1 percent. Sodium carbonate and sodium bicarbonate are predominant in salt composition. The pH of the entire soil profile is above 9 and ESP is higher than 20 percent.

[Continuation of TURANG XUEBAO No 1, Feb 82 pp 34-42]

Soil survey and the modeling test in the laboratory has proved that there are two different ways by which the crust-solonetz is formed. First, in the process of alternation of accumulation and desalination, the sodium ions enter the soil adsorptive complex in the salt-affected soil containing sodium salt. Second, the salt is alkalized with the accumulation of sodium-carbonate and bicarbonate in soil induced by the rising of the low mineralized ground water.

This soil should be improved with integrated measures. In the area where there are conditions of irrigation and drainage, agricultural measures, such as deep plowing combined with the application of a large amount of organic manure, may be adopted. However in the area where the soil is more highly alkalized, chemical measures, such as application of gypsum or phospho-gypsum, should be adopted in addition to the agricultural measures.

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TITLE: "Soil Colloid Research. VIII. The Mineralogical Composition of the Colloids of Five Important Soils in China."

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 82 pp 62-70

TEXT OF ENGLISH ABSTRACT: The mineralogical composition of the soil colloids separated from black soil, loessial soil, yellow brown earth, red earth and laterite have been quantitatively analyzed by the systematic method of Alexiades and Jackson. In order to have the determination of the mineralogical composition of soil colloid more suitable for the actual conditions of these soils, the analytical methods of kaolinite and illite have been modified. The content of kaolinite was determined by  $\text{NH}_4\text{Cl}$  retention measurement instead of selective dissolution analysis. For estimating the content of illite, 5 percent of the  $\text{K}_2\text{O}$  extracted by 1 N  $\text{HNO}_3$  was regarded as a parameter. The content of mica was calculated by means of 10 percent of the amount of total  $\text{K}_2\text{O}$  subtracting the  $\text{K}_2\text{O}$  extracted by 1 N  $\text{HNO}_3$ .

[Continuation of TURANG XUEBAO No 1, Feb 82 pp 62-70]

The composition of the clay minerals of the five soils varies greatly. The highest content of montmorillonite is found in black soil, and its decreases gradually from north to south. However, the content of kaolinite tends to increase gradually from north to south. Vermiculite and transitional minerals of 14 Å are found in the soils of subtropical China.

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TITLE: "Micromorphological Characteristics of Some Cultivated Soils in North-eastern China"

SOURCE: Beijing TURANG XUEBAO [ACTA PEDOLOGICA SINICA] in Chinese No 1, Feb 82 pp 85-91

TEXT OF ENGLISH ABSTRACT: Micromorphological characteristics of black soils, planosols and soda-solonchaks of various levels of fertility were investigated by means of structure analysis, optical microscopy and scanning electron microscopy. The results obtained are summarized as follows:

1. With a large amount of humic substances, black soils are well aggregated and highly stable in structure. The content of microaggregates ( $> 0.05$  mm) in black soils is about 30-70 percent, that in planosols is less than 30 percent, that in unimproved soda-solonchak is 20 percent, and that in ameliorated soda-solonchak is 46 percent. The water-stable aggregates ( $> 0.25$  mm) are distributed with the same tendency of the microaggregates ( $> 0.05$  mm) in the soils.
2. Under a microscope, the degree of aggregation and the size of soil microaggregates, as well as soil porosity, can be observed precisely. Black soils have



a spongy fabric. Soil particles are cemented by gel-like substances to form porous soil structure. Planosols show a loosely-bound agglomeratic fabric with lower porosity. Unimproved soda-solchaks belong to a porphyropeptic fabric in which almost no aggregates can be found. The ameliorated soda-solchaks have a plucto-amictic fabric in which microaggregates are formed by the gel-like substances and mineral grains.

3. The variation of the organo-mineral complexes in soils is also observed by a scanning electron microscope. In fertile black soils the organo-mineral complexes are agglutinated by the gel-like substances to form a loose and soft soil structure. In unimproved soda-solchaks and planosols the particles are merely accumulated together without any evidence of cementation. In ameliorated soda-solchaks some gel-like substances appear on the particle surface, which means organo-mineral complexes are formed.

9717

CSO: 4011/40

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TITLE: "Research on the Pathogenesis of Hog Hematuria in Hanzhong Prefecture"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 10, 20 Oct 81 pp 11-15

ABSTRACT: Since 1966, a disease of unknown origin with hematuria as the primary symptom has been occurring in pigs in some areas of Ningqiang, Lyuyang, Yangxian, and Mianxian counties of Shaanxi Province. The incidence is growing. The authors began to carry out a survey of this disease in 1975 to learn its distribution, its natural environment, the feeding and management condition, etc. In the process, leptospirosis and other infectious diseases were gradually excluded. Through a feeding experiment, it was discovered that the local people had the habit of feeding the pigs with a local plant called Xiaopao, which was subsequently identified to be *Disco-leidion rufescens* (Franch.) Pax et Hoffm. This plant was experimentally fed to a pig and it developed hematuria with all signs and dissection changes identical to those pigs which developed the disease naturally. The disease is, therefore, proved to be a toxic reaction to a poisonous plant. Clinical symptoms, microbiological and serological reactions, treatment method and results, and toxicological analysis of the poisonous plant are reported.

6248

CSO: 4011/25

AUTHOR: WANG Renzhu [3769 0088 2691]  
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ORG: WANG, JANG of Huangnanzhou Prefecture Center of Pastoral Science, Qinghai Province; ZHAO of Henan County Animal Husbandry Station, Huangnanzhou Prefecture

TITLE: "Research on Weakened Bovine Paratyphoid Vaccine"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 11, 20 Nov 81 pp 7-8

ABSTRACT: There have been extensive epidemics of bovine paratyphoid fever in the prefecture and the province causing death to large number of calves and some adult oxen as well. The pathogen is primarily *Salmonella bovis morbificans*. At present, the live vaccine with aluminum hydroxide added has produced obvious effect, but the immune period is too short and the vaccine has to be injected. The authors cultured a strain, S7301, obtained from a diseased ox to produce the S7301-73 vaccine without adding other agents. Used in a mist, the vaccine has been found to be effective and safe for calves and it does not appear to have obvious adverse effects on the workers who handle the mist.

This paper was received for publication on 4 Sep 80.

AUTHOR: ZHOU Shilang [0719 0013 2597]  
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ORG: Bath of Wenjiang School of Agriculture, Sichuan Province

TITLE: "Listeria monocytogenes Found in Swine Cholera Victims: A Diagnostic Report"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 11, 20 Nov 81 pp 13-15

ABSTRACT: Swine cholera has been endemic for the experimental pig farm of the school. In 1978, more than 20 piglets died of it. In May 80, 15 newly weaned piglets came down with the disease and bacteriological examination of 3 of these produced *Listeria monocytogenes*. The major expression of listeriosis is septicemia which is also the major symptom of swine cholera. It is, therefore, clinically difficult to distinguish. Correct diagnosis is possible only through bacteriological examination. Passive doses of penicillin and streptomycin can be effective for listeriosis at the very early stage if it is diagnosed early and correctly.

Q449

CDC: 4011/24

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ORG: CHAI, CHENG, GAO, CAI of Lanzhou Research Institute of Veterinary Medicine, Chinese Academy of Agricultural Sciences; CHAI, DING of Department of Biology, Beijing University

TITLE: "Preliminary Electromicroscopic Observation of Liver and Muscle of Piglets of White Muscle Disease"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 1, 20 Jan 82 p 2, inside front cover

ABSTRACT: White muscle disease occurs extensively among the piglets in China, especially in the Northeast. In 1979, the authors discovered a general phenomenon of low selenium level in pig livers of that region, only about  $0.11 \pm 0.026$  ppm (dry weight.) In 1980, they conducted an epidemiological study of this disease in several farms of Dedu County, to observe the clinical symptoms of piglets, to take EKG's to carry out hematological analysis, and to determine the selenium content. Moreover, for the piglets of the disease, electromicroscopic observation of the liver and the skeletal muscles was performed. Liver cells are observed to be obviously turning into fat; myofibrillae appear to turn angular. Photo-illustrations of these and other findings are reproduced on the inside front cover of this issue.

AUTHOR: ZHANG Wentao [1728 2429 3447]

ORG: Lanzhou Research Institute of Veterinary Medicine, Chinese Academy of Agricultural Sciences

TITLE: "Development of Mycology in Chinese Veterinary Medicine and Its Mission in the Modernization of China's Animal Husbandry"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 1, 20 Jan 82 pp 36-41

ABSTRACT: Following a general discourse on mycology and the outstanding problem of definition of the term, mold, in China, this paper examines the following in separate sections: (1) Animal diseases caused by fungus poison; (2) Veterinary mycosis; (3) Medicinal fungi; (4) Production of fungal protein for feed, the value of its utilization, and the problem of toxicity. Responsibilities of veterinary mycological research in China are summarized in the following: (1) Diseases of fungus poison; (2) Mycosis; (3) Fungus feed; (4) Medicinal fungi.

AUTHOR: YANG Lyuduan [2799 1462 4551]  
JBI Aezhou [0604 034 0719]

ORG: Both of Guizhou College of Agriculture

TITLE: "Harmful Effects of Nitrate and Nitrite Accumulations in Green Feed on Animals and Their Control"

SOURCE: Lanzhou SHOUYI KEJI ZAZHI [JOURNAL OF VETERINARY SCIENCE AND TECHNOLOGY] in Chinese No 1, 20 Jan 82 pp 42-47

ABSTRACT: The extensive and pervasive existence of nitrates and nitrites in plants, the air, the soil, and the drinking water and their danger to men and animals have gradually been brought to the attention of related departments. This paper explains the absorption of nitrates by crops and grass for the synthesis of vegetable protein, while microbes in the stomach of animals reduce the nitrates into nitrites, which are antecedents to the carcinogenic nitrosamine. Applications of large quantities of nitrogen fertilizer and the use of hormone herbicides, unreasonable irrigation with industrial wastewater, excessively dense planting causing insufficient solar radiation on crops, etc. further aggravate the problem. Some data concerning the relationship between the nitrate content of spinach and beets and the quantity of fertilizer applied and light penetration, the  $\text{NO}_2^-$ ,  $\text{NO}_3^-$  contents of several vegetables and forage grass are given, but not the origin of the information. Harmful effects of nitrates and nitrites on animals are explained in some detail. There is a table explaining the relationship between the nitrate content of feed and the

[continuation of SHOUYI KEJI ZAZHI No 1, 1982 pp 42-47]

hemoglobin and methemoglobin contents of the blood of dairy cows [from an unspecified source of USSR.] Aside from methemoglobinemia, the symptoms of acute poisoning by nitrites, the carcinogenic action of nitrosamines, and harmful effects of nitrites in the digestive tract on preventing the formation and absorption of vitamin A, B, and E are briefly discussed. The need for molybdenum fertilizer in many parts of China, careful storage of green feed to control its temperature and freshness, and the protection of the natural environment against pollution are recommended as essential for controlling the harmful effects of nitrates and nitrites. There is no mention of Chinese studies on the subject in the paper.

62/48  
234 4011/19

AUTHOR: ZHANG Shimei [4545 1102 5019]  
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ORG: Both of Jiangxi Agricultural University

TITLE: "Faunal Analysis of the Agricultural Insects in Jiangxi Province"

SOURCE: Kunming DONGWUXUE YANJIU [ZOOLOGICAL RESEARCH] in Chinese No 1, Feb 82  
pp 31-35

TEXT OF ENGLISH ABSTRACT: This paper deals with the faunal analysis of 1,100 species of agricultural insects, including the pests and their enemies. The present paper is divided into two parts: the first part introduces the types of fauna of the insects and the percentage of each type, and the second illustrates the names of the species whose south or north border of distribution is within Jiangxi and indicates their south or north distributional lines.

Among these insects, a total of 48.82 percent belongs to the faunal of the Oriental region, and 16.91 percent are of the palaearctic region. If all of the "Orientals" are summed up, the percentage will increase to 81.64 percent, and "palaearctics" will increase to 43.46 percent, so it is safe to say that Jiangxi belongs to the fauna of the Oriental region and is near the southern border of the Palaearctic region.

AUTHOR: WU Jiayan [0702 1367 3508]  
LI Guihui [2621 6311 6540]

ORG: Both of the Institute of Zoology, Shanxi

TITLE: "A Report on the Mammals of Ankang Region, Shanxi Province"

SOURCE: Kunming DONGWUXUE YANJIU [ZOOLOGICAL RESEARCH] in Chinese No 1, Feb 82  
pp 59-68

TEXT OF ENGLISH ABSTRACT: A faunal survey was conducted from April 1963 to February 1966 in the Ankang region of the southern part of Shanxi Province. Collections were made at the following localities: Ningshan, Shiquan, Hanyin, Ankang, Xunyang, Lan'gao, Pingli, Baihe, Ziyang and Zhenping. Altogether, 2989 specimens were collected, including 96 species and subspecies belonging to 26 families and 7 orders.

This region, in the authors' view, may be zoogeographically divided into six zones:

1. Subalpine coniferous forest zone of Qinling (altitude above 2500 m);
2. Mid-mountain mixed forest zone of Qinling (altitude 2500-1300 m);
3. Low mountain defoliation and broad leaf and even green broad leaf forest zone of Qinling (altitude 1500-800 m);
4. Cultivated field zone of Ankang Basin (altitude 800-500 m);



[Continuation of DONGWUXUE YANJIU No 1, Feb 82 pp 59-68]

5. Low mountain even green defoliation and broad leaf forest zone of Taibai Shan Mountain (altitude 2000-1300 m);

6. Subalpine coniferous forest zone of Taibai Shan Mountain (altitude above 2200 m).

For each of these zones, brief notes are given concerning its faunal characteristics, with due emphasis on representative species.

On the south slope of Qinling, 27 percent of the mammals are Palaearctic species, 44 percent are Oriental species. On the north slope of Taibai Shan Mountain, almost 15 percent of the mammals are Palaearctic species and 47 percent are Oriental species.

From the above analysis, the authors conclude that Qinling Mountain, along with Taibai Shan region, is apparently a transitional belt between the Palaearctic and Oriental realms. The oriental elements are increasing from north to south, while the palaearctic ones are decreasing gradually.

9717

CSO: 4011/47

AUTHOR: CHENG Yuanda [2052 3293 6671]

ORG: Institute of Animal Husbandry and Veterinary Science, Hunan

TITLE: "A Survey of Parasitic Nematodes in Domestic Animals and Poultry from the Lingling Area, Hunan Province, with Descriptions of Two New Species"

SOURCE: Beijing DONGWU FENLEI XUEBAO [ACTA ZOOTAXONOMICA SINICA] in Chinese No 1, Jan 82 pp 20-26

EXCERPTS FROM ENGLISH ABSTRACT: A survey of parasitic nematodes in domestic animals and poultry of Lingling area, Hunan Province, was made during June-July, 1979. After an examination of 154 livestock and poultry, 47 species belonging to 18 families and 30 genera and including two new species and three new records for China were found. The new species are described in this paper and type specimens are deposited in the Institute of Animal Husbandry and Veterinary Science, Hunan.

The new species are:

*Elaeophora linglingense* sp. nov.

Types: Holotype ♂, allotype ♀, paratypes 6 ♀♀.

Host: Cattle

Location: Wall of aortic arch.

Locality: Lingling County, Hunan Province, China.

[Continuation of DONGWU FENLEI XUEBAO No 1, Jan 82 pp 20-26]

*Thominx gallinae*, sp. nov.

Types: Holotype ♂, allotype ♀, paratypes 2 ♂♂, 4 ♀♀.

Host: *Gallus gallus domesticus*.

Location: Caecum.

Locality: Jiangyong County, Hunan Province, China.

AUTHOR: YUN Lian [0765 5571]

ORG: Institute of Zoology, Chinese Academy of Sciences

TITLE: "A Survey of the Cestodes of Birds from Weishan Lake, Shandong Province, China"

SOURCE: Beijing DONGWU FENLEI XUEBAO [ACTA ZOOTAXONOMICA SINICA] in Chinese No 1, Jan 82 pp 27-31

EXCERPT FROM ENGLISH ABSTRACT: The material was collected from both wild birds and poultry in the region of Weishan Lake from November to December, 1975. Through an examination of 137 wild birds belonging to 15 species, 103 (75.1 percent) individuals were found to be infected with cestodes. Ten species of parasitic cestodes belonging to seven genera of the family Hymenolepididae have been identified and enumerated on in the Chinese text. In addition, an examination of 16 ducks and 9 fowls revealed the presence of 2 species of cestodes: *Fimbriaria fasciolaris* (Pallas, 1781), and one new species which is described. It is:

*Retinometra chinensis*, sp. nov.

Host: Domestic duck.

Location: Small intestine.

Locality: Weishan Lake, Shandong Province, China.

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MARCH 29, 1982